NUS CORPORATION
A Halliburton Company

JCFC RMH'C 10/1/84
137830
Darius

1c

PROJECT FOR PERFORMANCE OF REMEDIAL RESPONSE ACTIVITIES AT UNCONTROLLED HAZARDOUS SUBSTANCE FACILITIES—ZONE 1

NUS CORPORATION
SUPERFUND DIVISION

ORIGINAL
(red)

R-585-4-4-32

DESK-TOP PRELIMINARY ASSESSMENT AND SITE INSPECTION OF RHINEHART TIRE DUMP

PREPARED UNDER

TDD NO. F3-8403-07
EPA NO. VA-278
CONTRACT NO. 68-01-6699

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

SEPTEMBER 28, 1984

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY	REVIEWED BY	APPROVED BY
RICHARD GORRELL	WILLIAM WENTWORTH	GARTH GLENN
ENVIRON. ENGINEER	ASST. MANAGER, REPORTS	MANAGER, FIT III

TABLE OF CONTENTS

APPENDICES

SECTION 1

1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-6699. This specific report was prepared in accordance with Technical Directive Document No. F3-8403-07 for the Rhinehart Tire Dump located in Frederick County, Winchester, Virginia.

1.2 Scope of Work

NUS Corporation was tasked to complete a desk-top Preliminary Assessment, Site Inspection, and Hazard Ranking report for the subject project, based upon sample analyses data and other information provided by the U.S. EPA and the Virginia State Water Control Board (VA SWCB). The Hazard Ranking report has been submitted under separate cover.

1.3 Summary

After reviewing data and reports supplied by EPA and the VA SWCB, as well as discussing the site with Virginia officials, NUS FIT III completed a desk-top Preliminary Assessment and Site Inspection report.

The Rhinehart Tire Dump is approximately 5 acres and is located in a ravine on private property adjacent to an unnamed tributary to Hogue Run. In 1972, Mr. Paul Rhinehart, the site owner, began a tire disposal operation which consisted of transporting rubber tires from various locations to the ravine for ultimate disposal.

On October 31, 1983, the tire dump caught fire. Although the fire was brought under control within a short period, the dump continued to smolder for several months. The exact date at which the fire was declared entirely extinguished is unavailable. Combustion processes resulted in the contamination of air and the by products of the fire contaminated surface water and groundwater within the site vicinity.

Several containment basins were constructed in an effort to mitigate surface water contamination. In addition to the containment basins, several groundwater monitoring wells were also constructed in and around the disposal area. Sampling from the test wells and residential supply wells has shown contamination in the test wells only. On February 13, 1984, the site owner consented to a C.E.R.C.L.A. Section 106 Order issued by EPA requiring control of on-site drainage.

SECTION 2

2.0 THE SITE

2.1 Location

The Rhinehart Tire Dump is located in Western Frederick County, Virginia, in a sparsely populated area approximately 3/4 miles northwest of the town of Mount Pleasant. The nearest major road in the area is County Road 608, which passes through the town of Mount Pleasant. The town of Winchester is approximately 6 miles east of the site.

2.2 Site Layout

The site consists of a ravine which was filled with waste rubber tires. Although a fire at the site in 1983 reduced the volume of materials in the ravine, the original area of fill was estimated at 600 feet long by 375 feet wide with depths ranging from 20 to 40 feet.

An unnamed tributary to Hogue Run is located approximately 100 feet north of the site. Topography is such that drainage from the ravine area flows toward this stream. The general area slopes 20 to 35 percent in a north westerly direction and elevations range from 920 feet to 1,000 feet mean sea level (MSL).

Following the 1983 fire at the subject site, EPA authorized the construction of several containment structures down slope from the ravine. Currently, there are 3 of these structures on the site. The primary containment lagoon, an unlined 50,000 gallon capacity pond, is located immediately down slope from the burn area. The second lagoon, a lined 400,000 gallon capacity pond, is located adjacent to the primary lagoon. The third containment lagoon, its capacity is estimated at 1/4 of that of the second lagoon, is located adjacent to the unnamed tributary. This lagoon functions as a safety valve to ensure that oils from the second lagoon do not enter the unnamed tributary.

2.3 Ownership History

Previous owners of the property are not known. Mr. Paul Rhinehart has owned the property for at least the past 12 years.

2.4 Site Use History

Although records are not available, the Frederick County Administration reports that the site had been used to raise horses in the past. In 1972, Mr. Rhinehart began accepting old tires for disposal on his property. Mr. Rhinehart owns several trucks that had delivered discarded tires to the site from locations up to 200 miles away. In addition to operating this business, Mr. Rhinehart had built an incinerator that was to be used to test a process that would recover carbon black and oils from the discarded tires. The incinerator was never put into operation.

2.5 Permit and Regulatory Action History

As of the this time, there have been no permit or regulatory actions associated with the subject site. However, due to complaints by local residents, activities on site were halted persuant to a circuit court action.

2.6 Remedial Action To Date

With the exception of the construction of containment structures to prevent the discharge of oils from entering adjacent surface waters and the removal of by-product oils from containment structures at the site, there have been no remedial actions to remove or properly dispose of the materials remaining on site. Approximately 800,000 gallons of oils produced by the fire have been removed from the containment structures and it is understood that they will be used as blending agents in fuel oils. It has been estimated that approximately 20 percent of the volume of materials originally placed on site remained as of April 2, 1984. On February 13, 1984, the site owner consented to a C.E.R.C.L.A. Section 106 Order issued by EPA requiring control of on-site drainage.

SECTION 3

3.0 ENVIRONMENTAL SETTING

3.1 Surface Waters

The site is drained by a small unnamed tributary along its western edge. This stream joins another unnamed tributary which drains a facing valley. The 2 streams confluence to form Massy Run. Massy Run flows about 1/2 mile west to Hogue Creek. Massy Run is not labeled on the U.S.G.S. Topographic 7.5' quadrangle shown in figure 1 of appendix B. The nearest public water supply intake on Hogue Creek is 22 miles downstream. Most of the on-site activities performed by EPA Emergency Response Team (ERT) were directed toward preventing oily discharges from the fire from entering Massy Run and contaminating Hogue Creek.

3.2 Geology and Soils

The majority of geologic information for this site was obtained from Mr. Thomas Stone, Hydrogeologist for IT Corporation (ERT consultant). The Rhinehart Tire Dump is located on the west side of Hunting Mountain in the Appalachian section of the Ridge and Valley Province. The site is underlain by the Chemung Formation, which is defined on the Virginia Division of Mineral Resources map (by James L. Calver) as consisting of chiefly gray shale and sandstone with thin conglomerates and a few red zones (appendix D). According to Mr. Stone, the monitoring well drill logs for the site show a highly cemented, very hard, mostly fine grained sandstone with some shale and some weathered zones composed of 0.5 to 2.0 inches of clay. The formation is very massive in this area and supports near vertical fractures with a northwest-southeast trend. This alignment concides with the strike of the beds and the strike of Hunting Mountain ridge top to the immediate east of the site. The dip of the beds range from 35 to 50 degrees to the east-southeast.

As shown on the geologic map and cross section (see appendix D), the site is located on the western side of Hunting Mountain. Hunting Mountain is entirely within the Chemung Formation and is on the western limb of the Pleasant Mountain Syncline, which plunges to the south. Within a few thousand feet, east of the site, is the overlying Hampshire Formation which is comprised of red shale, mudrock, and sandstone. To the west is the underlying Braillier Formation which consists of greenish to brown micaceous shale with thin intercalated layers of fine-grained gray sandstone. Mr. Stone estimates that the actual thickness of the Chemung Formation in the site area is approximately 1,500 feet; however, since the beds are dipping, the apparent (vertical) thickness of the formation is roughly 2,000 feet. The entire thickness of the Chemung Formation is exposed at the surface with the site situated in the mid to lower strata.

The overburden in the immediate site area ranges in thickness from 20 to 30 feet on the average, but can be completely missing in the stream valleys as is the case along Massy Run. In general, the overburden is thickest on the side slopes of Hunting Mountain and thins toward the valley. The overburden is composed of weathered Chemung and, as such, consists of sandstones, shales, and clays. The sequence is gradational to bedrock with alternating layers of relatively competent material. The extent to which Mr. Rhinehart reworked the soils in the site area has not been determined. According to Mark Davis (Frederick County District Conservationist), the soils in the site area were mapped as belonging to the Wiekurt Berkes Channery silt loam 25 to 65 percent series.

3.3 Groundwaters

Information on groundwater in the vicinity of the site was obtained from a telephone conversation with Mr. Stone. IT Corporation installed 7 monitoring wells at the site and is in the process of finalizing a hydrogeologic assessment. According to Mr. Stone, there is no definable aquifer under the site. This is due to the presence of near vertical joints and steeply dipping beds which intersect the overburden allowing surface water to be communicated into the bedrock readily. However, there are essentially 2 flow regimes within the site area. The upper regime mainly occupies the overburden and mimics topography at an average depth of 10 feet. Flow in the overburden is generally toward the unnamed tributary and Massy Run. Deep flow in the bedrock follows a more regional path believed to be in a southeastern direction toward the axis of the synclines in the direction of plunge. Mr. Stone stated that the near surface flow is complicated by a positive vertical flow component (artesian) which impedes the infiltration of surface waters into the ground. As a result, most contaminants probably flow to the nearest downgradient stream. Some lateral flow has been observed in the overburden. Latteral flow is produced by the combined effects of the positive vertical flow component, the presence of alternating layers of relatively competent and highly weathered material in the overburden, and near vertical joints and fractures. Hydraulic conductivity rates, as determined by Mr. Stone, were 5.4×10^{-6} feet/sec. (1.6×10^{-4} cm/sec) for the overburden and 1.4×10^{-4} ft./sec (4.2×10^{-3} cm/sec) for the bedrock as noted in appendix E. Flow in the bedrock ranged from 0.1 gpm to 15 gpm and intersected. Reduced flow in the overburden is due to the presence of weathered material which collapses and clogs the secondary porosity near the surface.

Three (3) of the monitoring wells were installed into bedrock and 4 were installed into overburden. The maximum range in elevation monitored by the wells is 168 feet from the base of the highest well to the base of the lowest well. Little correlation can be drawn from this, which will be discussed in IT Corporation's final report. The range or extent of contamination has not been completely determined. The state of Virginia conducted a survey of the homes in the area; the results of contamination found in these wells, in conjunction with the geology, will be presented in IT Corporation's report.

According to Mr. Stone, Mr. Rhinehart draws his drinking water from an artesian spring above the site. Analysis of his water has shown no contamination to date. The next closest residential well is approximately 1/4 mile away, according to Mr. Stone. Mr. Stone stated that local drillers told him that people on Hunting Mountain ridge have wells drilled to 300 feet or more. Mr. Stone does not know of any contamination in these bedrock wells. He said that some wastes have entered the bedrock on site, but that these wastes will probably leave through the streams. Contamination is not expected to move downward to much extent.

3.4 Climate and Meteorology

The climate of the Frederick County area is characteristic of a humid continental-type marked by extreme seasonal temperature changes. The mean annual air temperature is about 53°F. Annual precipitation is about 38 inches. The distribution of rainfall, which is nearly uniform throughout the year, reaches a maximum in August. The climate is modified by the higher humidity of the Atlantic Coastal area.

3.5 Land Use

The land usage in the site vicinity is largely rural. There are, however, some agricultural and pasture lands as well as a few small residential villages within a 3-mile radius of the site.

3.6 Population Distribution

There are approximately 20 homes or about 76 people residing within a 1-mile radius of the site. Most of these homes are located approximately 3/4 of a mile southeast of the site in the village of Mount Pleasant. Based on a U.S.G.S. topographic map house count, an estimated 40 residences, or 152 persons, are located within a 3-mile radius of the site.

3.7 Water Supply

Water supplies in the area of the site, which draw water from the aquifer of concern (Chemung Formation), are provided by private domestic wells. There are no other sources of drinking water currently available. Local residential wells and test wells have been sampled. Although the test wells have shown contamination, no domestic wells have been found to be contaminated (see appendix C).

3.8 Critical Environments

Hogue Creek is a state designated "put and take" trout stream.

SECTION 4

4.0 WASTE TYPES AND QUANTITIES

Records of the materials deposited on site prior to the fire were not kept or required, since there were no permits issued to the site. The tires, as deposited on site, were not considered hazardous materials. An unknown quantity of hazardous substances, including benzene, phenol, chloroform, and styrene were released to the air as a result of the fire. An unknown quantity of hazardous materials, including benzene, phenol, methylene chloride and toluene, have been released to surface and groundwaters adjacent to the site as byproducts of the fire. These oils were partially contained within the previously described lagoons and eventually removed from the site.

SECTION 5

5.0 EPA ASSESSMENT FORMS

5.1 EPA Preliminary Assessment Form

5.2 EPA Site Inspection Form

ORIGINAL
(Red)

TDD No. F3-8403-07

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	278

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Rhinehart Tire Dump	Mt. Falls

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Winchester	VA	22601	Frederick	069	VA07

09 COORDINATES LATITUDE	LONGITUDE
39° 10' 50"	78° 18' 10"

10 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
None by FIT III (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1972 (BEGINNING YEAR) 1983 (ENDING YEAR) ☐ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☒ A. EPA ☒ B. EPA CONTRACTOR NUS Corporation (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☒ E. STATE ☐ F. STATE CONTRACTOR _____ (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO
Inspection initiated by EPA, OSC, and ERT			( )

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO
			( )
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
N/A			( )
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	Inspection initiated by fire on property by EPA Emergency Response Team. No site inspection conducted by FIT III.	

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO
Darius Ostrauskas	EPA Region III	(215) 597-1391

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
David R. Kindig	-----	NUS Corp.	(215) 687-9510	4 / 13 / 84 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

AR100164

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	278

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- _ A SOLID
- _ B POWDER (FINES)
- _ C SLUDGE
- _ E SLURRY
- X F LIQUID
- X G GAS
- X D OTHER (Specify) oils

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

- TONS 3,336
- CUBIC YARDS --
- NO OF DRUMS 14,550

03 WASTE CHARACTERISTICS (Check all that apply)

- X A TOXIC
- _ B CORROSIVE
- _ C RADIOACTIVE
- X D PERSISTENT
- _ E SOLUBLE
- _ F INFECTIOUS
- X G FLAMMABLE
- X H IGNITABLE
- _ I HIGHLY VOLATILE
- _ J EXPLOSIVE
- _ K REACTIVE
- _ L INCOMPATIBLE
- _ M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE	800,000	gallons	produced as a result of fire
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	Benzene	71432	all wastes were produced as a result of a fire		
OCL	Phenol	108952	on site and released to air, surface water		
SOL	Chloroform	67663	and groundwater. Results of sampling/		
SOL	Methylene Chloride	75092	monitoring conducted by EPA ERT and		
SOL	Methyl Ethyl Ketone	78933	Virginia Water Control Board are located		
SOL	Ethylene Dichloride	107062	in Appendix 3 and 4 of the Site Inspection		
SOL	1,1,1-trichloroethane	71556	Report.		
SOL	Toluene	108883			
SOL	Acetone	67641			
SOL	Xylenes	1330207			
SOL	Styrene	100425			
SOL	Ethyl Benzene	100414			
PSD	Caprolactam	- - -			
**The above lists major organic hazardous and priority pollutants found in samples and is not a complete listing. See Appendix 3 and 4 of the Site Inspection Report for complere results.					

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS	N/A		FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., State files, sample analysis, reports)

EPA Environmental Response Branch Preliminary Environmental Assessment Report, 2/15/84

Virginia Water Control Board results of quantitative analyses (See Appendix C of the Site Inspection Report)

EPA FORM 2070-13(7-81)

AR100165

ORIGINAL
(Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
VA	278

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☒ OBSERVED (DATE: 3/26/84) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 152 — 04 NARRATIVE DESCRIPTION

Report of 3/26/84 by Virginia Water Control Board indicates quantitative evidence of groundwater contamination (See Appendix C of the Site Inspection Report).

01 ☒ B. SURFACE WATER CONTAMINATION — 02 ☒ OBSERVED (DATE: 2/15/84) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Report of 2/15/84 by EPA ERT indicates quantitative evidence of surface water contamination.

01 ☒ C. CONTAMINATION OF AIR — 02 ☒ OBSERVED (DATE: 2/15/84) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 152 — 04 NARRATIVE DESCRIPTION

Report of 2/15/84 by EPA ERT indicates quantitative evidence of air contamination.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None - Site has not been designated a potential fire/explosion threat.

01 ☒ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 76 (1 mi.) — 04 NARRATIVE DESCRIPTION

By-products of combustion of tires are on site in liquid and solid (residue) form.

01 ☒ F. CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE: 2/15/84) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 5 to 10 (Acres) — 04 NARRATIVE DESCRIPTION

Report of 2/15/84 by EPA ERT indicates quantitative evidence of soil contamination adjacent to the unnamed tributary to Hogue Creek.

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☒ OBSERVED (DATE: 3/16/84) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 2,014 (3 mi.) — 04 NARRATIVE DESCRIPTION

Potential exists for groundwater contamination of drinking water supplies based on preliminary results of groundwater sampling program.

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None known.

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None known.

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: VA | 02 SITE NUMBER: 278

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Potential due to release of toxic/hazardous substances into air, surface waters and soils.

01 ☒ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

Potential due to release of toxic/hazardous substances into air, surface waters and soils.

01 ☒ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Hogue Creek is a state designated "put and take" trout stream.

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, Standing liquids, Leaking drums) — 02 ☒ OBSERVED (DATE: 2/13/84) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 152 — 04 NARRATIVE DESCRIPTION

On February 13, 1984, the site owner consented to a C.E.R.C.L.A. Section 106 Order issued by EPA requiring control of runoff on site.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None known.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None known.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None

III. TOTAL POPULATION POTENTIALLY AFFECTED: 3,154 (4-mile radius)

IV. COMMENTS

N/A

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA ERT report of 2/15/84
Virginia Water Control Board analytical findings on analyses of surface waters, groundwaters and soils. (included with Site Inspection Report, Appendix C)

EPA Form 2070-13 (7-81)

AR100167

ORIGINAL
(Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
VA	278

II. PERMIT INFORMATION No known permits exist for the site

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☒ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT	Before the fire, an unknown	
☐ B. PILES	quantity of tires existed	
☐ C. DRUMS, ABOVE GROUND	on site. After the fire, 3	
☐ D. TANK, ABOVE GROUND	surface impoundments	
☐ E. TANK, BELOW GROUND	totalling an estimated	
☐ F. LANDFILL	450,000 gallons were	
☐ G. LANDFARM	constructed to contain	
☐ H. OPEN DUMP	contaminated runoff from	
☐ I. OTHER (Specify)	fire area.	

04 TREATMENT (Check all that apply)
- ☐ A. INCINERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☒ H. OTHER none (Specify)

05 OTHER
- ☒ A. BUILDINGS ON SITE: 2

06 AREA OF SITE
4.5 (Acres)

07 COMMENTS
The site was used for storage of old tires. The tires were simply piled on the ground. No permits exist for the site because the old tires were placed on private property and were not considered to be of a hazardous nature. No precautions were taken by the owner to contain the tires or to prevent access to the site.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☒ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.
Surface impoundments were constructed by EPA after the fire was started in an effort to contain waste oils produced due to the fire on site. Three containment impoundments were constructed. Primary containment was an unlined lagoon with a 50,000 gallon capacity. Secondary containment was a lined lagoon with a capacity of approximately 400,000 gallons. The third lagoon was a back up to the secondary impoundment and was not used.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS
Old tires were placed in a ravine on site. No barriers or other precautions exist.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Telecon - M. Sterrett, VA WCB; John Riley, Frederick County Virginia Administrator; S. Jarvella, EPA ERT. (See Appendix F of the Site Inspection Report.

EPA FORM 2070-13 (7-81)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE: VA | 02 SITE NUMBER: 278

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☐	B. ☐
NON-COMMUNITY	C. ☐	D. ☒

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☐
D. ☒	E. ☐	F. ☒

03 DISTANCE TO SITE
A. _____ (mi)
B. 0.01 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)
☒ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 152
03 DISTANCE TO NEAREST DRINKING WATER WELL 0.1 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
10 to 20 (ft)	northwest	10 to 20 (ft)	0.1 to 15 (gpd)	☒ YES ☐ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

A majority of the wells used for domestic drinking water are located southeast of the site at a distance of more than 1,000 feet, draw water from a deeper location in the aquifer, and aree upgradient of the direction of contaminated shallow groundwater movement.

10 RECHARGE AREA		11 DISCHARGE AREA	
☐ YES ☐ NO	COMMENTS: unknown	☐ YES ☐ NO	COMMENTS: unknown

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)
☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Hogue Creek	☒	0.75 (mi)
unnamed tributary to Hogue Creek	☒	0.01 (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 76 NO. OF PERSONS	B. 570 NO. OF PERSONS	C. 2,014 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION
0.1 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE
150

04 DISTANCE TO NEAREST OFF-SITE BUILDING
0.67 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Population is largely rural within 1 mile of the site and includes the small village of Mt. Pleasant southeast of the site. A major residential subdivision is located approximately 2 miles northwest of the site (Shawnee - Land).

EPA Fo

ORIGINAL
(Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE: VA | 02 SITE NUMBER: 278

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☒ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☒ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
20 to 30 (ft)	unknown (ft)	unknown	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
8 (in)	2.5 (in)	30 to 50 %	northwest	18 %

09 FLOOD POTENTIAL
SITE IS IN 200 YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. unknown (mi)	B. unknown (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)
_____ (mi)
ENDANGERED SPECIES: N/A

13 LAND USE IN VICINITY

DISTANCE TO: COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 6 (mi)	B. 0.01 (mi)	C. unknown (mi)	D. unknown (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is located near the summit of Hunting Ridge in the ridge and valley province of the Blue Ridge Mountains. As a result, the surrounding topography consists of wooded hills and valleys with rather steep grades.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA ERT Preliminary Report (2/15/84) and files from Virginia WCB reports.
U.S.G.S 7.5 Minute Winchester, Virginia Topographic Quad. (1973)
Hydrogeologic and geologic background information for the Rhinehart Tire Dump as determined by Mr. Thomas Stone, Hydrogeologist of IT Corporation, subcontractor for the EPA OSC.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	278

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN **	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	14	Virginia State WCB, Bridgewater, Virginia	See
SURFACE WATER	38	EPA Emergency Response Branch, Edison, NJ	Appendices
WASTE			
AIR	79	Clayton Environmental Consultants, Inc., (74) Weston, Inc. - SPER Division (5)	
RUNOFF		included with surface water sampling	
SPILL	4	EPA Emergency Response Branch, Edison, NJ	
SOIL			
VEGETATION			
OTHER	**Data received as of 2/15/84 - See Appendix C		

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
None performed by FIT III	

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☒ AERIAL

02 IN CUSTODY OF U.S. EPA ERT, VA WCB
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS
EPA ERT, Edison, NJ; IT Corporation, Edison, NJ

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

No data collected by FIT III.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analyses, reports)

EPA ERT report of 2/15/84
VA WCB results of quantitative analyses (See Appendix C of the Site Inspection Report)

EPA FORM 2070-13 (7-81)

ORIGINAL
(Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
VA	278

II. CURRENT OWNER(S)			**PARENT COMPANY** (If applicable)		
01 NAME Paul Rhinehart		02 D+B NUMBER	08 NAME N/A		09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) Mt. Falls		04 SIC CODE N/A	10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE
05 CITY Winchester	06 STATE VA	07 ZIP CODE 22601	12 CITY	13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)		11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
III. PREVIOUS OWNER(S) (List most recent first)			**IV. REALTY OWNER(S)** (If applicable; list most recent first)		
01 NAME unknown		02 D+B NUMBER	01 NAME unknown		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

U.S. EPA files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	278

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

N/A

EPA FORM 2070-13 (7-81)

ORIGINAL
(Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION
01 STATE: VA | 02 SITE NUMBER: 278

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

N/A

EPA FORM 2070-13 (7-81)

AR100174

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	278

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ F. WASTE REPACKAGED — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☒ G. WASTE DISPOSED ELSEWHERE — 02 DATE 11/83 — 03 AGENCY ____
04 DESCRIPTION
Seeping from the fire (800,000 gallons) was pumped out of lagoons for use as a blending agent in heating fuels. Company unknown.

01 ☐ H. ON SITE BURIAL — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ L. ENCAPSULATION — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ N. CUTOFF WALLS — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☒ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE 11/83 — 03 AGENCY EPA ERT
04 DESCRIPTION Three containment lagoons constructed to capture oily waste seeping into adjacent unnamed tributary to Hogue Creek.

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE ____ — 03 AGENCY ____
04 DESCRIPTION
N/A

EPA FORM 2070-13 (7-81)

ORIGINAL
(Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
VA	278

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Telecon communication previously noted.

EPA FORM 2070-13 (7-81)

AR100176

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	278

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☒ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

Circuit court closed the site in response to complaints from neighbors as of 10/7/83.

III. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Telecon communication previously noted.

TDD No. F3-8403-07

POTENTIAL HAZARDOUS WASTE SITE
IDENTIFICATION AND PRELIMINARY ASSESSMENT

REGION	SITE NUMBER (to be assigned by Hq)
III	VA-278

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II *(Preliminary Assessment)*. File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force *(EN-335)*; 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: Rhinehart Tire Dump

B. STREET *(or other identifier)*: Mt. Falls

C. CITY: Winchester

D. STATE: VA

E. ZIP CODE: 22601

F. COUNTY NAME: Frederick

G. OWNER/OPERATOR *(if known)*

1. NAME: Mr. Paul Rhinehart
2. TELEPHONE NUMBER: unknown

H. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE ☐ 6. UNKNOWN

I. SITE DESCRIPTION

Approximately 5 acre site in a ravine which is used for storage of discarded tires. The site is adjacent to an unnamed tributary of Hogue Creek.

J. HOW IDENTIFIED *(i.e., citizen's complaints, OSHA citations, etc.)*: Ms. Eve Thorsen - Virginia Emergency Services

K. DATE IDENTIFIED *(mo., day, & yr.)*: 10/31/83

L. PRINCIPAL STATE CONTACT

1. NAME: Mr. Ray Tesh - Virginia State Water Control Board - Director - Division of Surveillance and Field Studies
2. TELEPHONE NUMBER: (703) 828-2595

II. PRELIMINARY ASSESSMENT *(complete this section last)*

A. APPARENT SERIOUSNESS OF PROBLEM

☒ 1. HIGH ☐ 2. MEDIUM ☐ 3. LOW ☐ 4. NONE ☐ 5. UNKNOWN

B. RECOMMENDATION

☐ 1. NO ACTION NEEDED *(no hazard)*

☐ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

☐ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

☒ 4. SITE INSPECTION NEEDED *(low priority)*
Groundwater and surface water is and should be monitored periodically.

C. PREPARER INFORMATION

1. NAME: David R. Kindig, NUS FIT III
2. TELEPHONE NUMBER: (215) 687-9510
3. DATE *(mo., day, & yr.)*: 3/26/84

III. SITE INFORMATION

A. SITE STATUS

☐ 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)*

☒ 2. INACTIVE *(Those sites which no longer receive wastes.)*

☐ 3. OTHER *(specify)*: _____ *(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)*

B. IS GENERATOR ON SITE?

☒ 1. NO ☐ 2. YES *(specify generator's four-digit SIC Code)*:

C. AREA OF SITE *(in acres)*: approximately 5

D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES

1. LATITUDE *(deg.-min.-sec.)*: 39° 10' 50"
2. LONGITUDE *(deg.-min.-sec.)*: 78° 18' 10"

E. ARE THERE BUILDINGS ON THE SITE?

☐ 1. NO ☒ 2. YES *(specify)*: a small shed is located adjacent to the site.

T2070-2 (10-79)

Continue On Reverse

Continued From Front

IV. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

A. TRANSPORTER	B. STORER	C. TREATER	D. DISPOSER
1. RAIL	X 1. PILE	1. FILTRATION	1. LANDFILL
2. SHIP	2. SURFACE IMPOUNDMENT	2. INCINERATION	2. LANDFARM
3. BARGE	3. DRUMS	3. VOLUME REDUCTION	3. OPEN DUMP
4. TRUCK	4. TANK, ABOVE GROUND	4. RECYCLING/RECOVERY	4. SURFACE IMPOUNDMENT
5. PIPELINE	5. TANK, BELOW GROUND	5. CHEM./PHYS. TREATMENT	5. MIDNIGHT DUMPING
6. OTHER (specify):	6. OTHER (specify):	6. BIOLOGICAL TREATMENT	6. INCINERATION
		7. WASTE OIL REPROCESSING	7. UNDERGROUND INJECTION
		8. SOLVENT RECOVERY	8. OTHER (specify):
		9. OTHER (specify):	

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

Site was used for storage of discarded tires. Stated purpose of the site was for eventual reclamation/recycling.

V. WASTE RELATED INFORMATION

A. WASTE TYPE

☐ 1. UNKNOWN ☐ 2. LIQUID ☐ 3. SOLID ☐ 4. SLUDGE ☒ 5. GAS

*Tire burned therefore releasing gas and liquid to the environments

B. WASTE CHARACTERISTICS

☐ 1. UNKNOWN ☐ 2. CORROSIVE ☐ 3. IGNITABLE ☐ 4. RADIOACTIVE ☐ 5. HIGHLY VOLATILE
☒ 6. TOXIC ☐ 7. REACTIVE ☐ 8. INERT ☒ 9. FLAMMABLE

☐ 10. OTHER (specify):

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

None known

2. Estimate the amount(specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT: 800,000	AMOUNT	AMOUNT	AMOUNT: unknown	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE: gallon	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE
☐ (1) PAINT, PIGMENTS	X (1) OILY WASTES	☐ (1) HALOGENATED SOLVENTS	☐ (1) ACIDS	☐ (1) FLYASH	☐ (1) LABORATORY PHARMACEUT.
☐ (2) METALS SLUDGES	X (2) OTHER(specify): byproduct oils from combustion	☐ (2) NON-HALOGNTD. SOLVENTS	☐ (2) PICKLING LIQUORS	☐ (2) ASBESTOS	☐ (2) HOSPITAL
☐ (3) POTW		☐ (3) OTHER(specify):	☐ (3) CAUSTICS	☐ (3) MILLING/ MINE TAILINGS	☐ (3) RADIOACTIVE
☐ (4) ALUMINUM SLUDGE			☐ (4) PESTICIDES	☐ (4) FERROUS SMLTG. WASTES	☐ (4) MUNICIPAL
☐ (5) OTHER(specify):			☐ (5) DYES/INKS	☐ (5) NON-FERROUS SMLTG. WASTES	☐ (5) OTHER(specify):
			☐ (6) CYANIDE	X (6) OTHER(specify): solid remains of tires are on site	
			☐ (7) PHENOLS		
			☐ (8) HALOGENS		
			☐ (9) PCB		
			☐ (10) METALS		
			☐ (11) OTHER(specify		

ORIGINAL (Red)

V. WASTE RELATED INFORMATION (continued)

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE (place in descending order of hazard).

Benzene	Methyl ethyl ketone	Acetone
Phenol	Ethylen dichloride	Xylenes
Chloroform	1,1,1-trichloroethane	Styrene
Methylene chloride		Toluene

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD (mark 'X')	C. ALLEGED INCIDENT (mark 'X')	D. DATE OF INCIDENT (mo., day, yr.)	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH	X		10/31/83	Although discharges to surface waters
3. NON-WORKER INJURY/EXPOSURE				have been contained, fire continues to emit combustion products to air.
4. WORKER INJURY				Continuation of problem also indicative of possible groundwater contamination.
5. CONTAMINATION OF WATER SUPPLY				
6. CONTAMINATION OF FOOD CHAIN	X		10/31/83	
7. CONTAMINATION OF GROUND WATER		X	10/31/83	
8. CONTAMINATION OF SURFACE WATER		X	10/31/83	
9. DAMAGE TO FLORA/FAUNA	X		10/31/83	
10. FISH KILL	X		10/31/83	
11. CONTAMINATION OF AIR		X	10/31/83	
12. NOTICEABLE ODORS		X	10/31/83	
13. CONTAMINATION OF SOIL		X	10/31/83	
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION		X	10/31/83	
16. SPILLS/LEAKING CONTAINERS/ RUNOFF/STANDING LIQUIDS				
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER (specify):				

AR 000180

Continued From Front

VII. PERMIT INFORMATION

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE.

None known

☐ 1. NPDES PERMIT ☐ 2. SPCC PLAN ☐ 3. STATE PERMIT (specify): _____

☐ 4. AIR PERMITS ☐ 5. LOCAL PERMIT ☐ 6. RCRA TRANSPORTER

☐ 7. RCRA STORER ☐ 8. RCRA TREATER ☐ 9. RCRA DISPOSER

☐ 10. OTHER (specify): _____

B. IN COMPLIANCE?

☐ 1. YES ☐ 2. NO ☐ 3. UNKNOWN

N/A

4. WITH RESPECT TO (list regulation name & number): _____

VIII. PAST REGULATORY ACTIONS

☐ A. NONE ☒ B. YES (summarize below)

Circuit court closed the facility on October 7, 1983, in response to complaints from neighbors.

IX. INSPECTION ACTIVITY (past or on-going)

☐ A. NONE ☒ B. YES (complete items 1,2,3, & 4 below)

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION
Air	11/3/83	EPA	Continuous sampling & monitoring thru 11/30/83
Surface water & sediments	11/3/83	EPA/VA SWCB	Joint sampling and monitoring thru 11/30/83
Groundwater	1/3/84	VA SWCB IT Corp.	7 wells drilled to determine the extent of groundwater contmination and hydrogeologic conditions.

X. REMEDIAL ACTIVITY (past or on-going)

☐ A. NONE ☒ B. YES (complete items 1, 2, 3, & 4 below)

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION
Runoff containment	11/3/83	EPA	450,000 gallon containment capacity via 3 containment ponds
Removal of byproduct oils	11/30/83	unknown	800,000 gallons were pumped from the ponds and removed from the site

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment (Section II) information on the first page of this form.

APPENDIX A

ORIGINAL
(Red)

1. COST CENTER:	REM/FIT ZONE CONTRACT TECHNICAL DIRECTIVE DOCUMENT (TDD)	2. NO.:
ACCOUNT NO.:		F3-8403-07

3. PRIORITY:	4. ESTIMATE OF TECHNICAL HOURS:	5. EPA SITE ID:	6. COMPLETION DATE:	7. REFERENCE INFO.:
☒ HIGH ☐ MEDIUM ☐ LOW	120	VA-278	4/23/84	☒ YES ☐ NO ☐ ATTACHED ☒ PICK UP
	4A. ESTIMATE OF SUBCONTRACT COST:	5A. EPA SITE NAME: Rhinehart Tire Dump Winchester, VA		

8. GENERAL TASK DESCRIPTION: Conduct a Desktop PA/SI/HRS of subject site.

9. SPECIFIC ELEMENTS:

1.) Review background information.
2.) Contact state or local authorities, if needed.
3.) Submission of report.

10. INTERIM DEADLINES:

11. DESIRED REPORT FORM: FORMAL REPORT ☒ LETTER REPORT ☐ FORMAL BRIEFING ☐

OTHER (SPECIFY): Contact Darius Ostrauskas for additional information.

12. COMMENTS: Potential NPL Site.

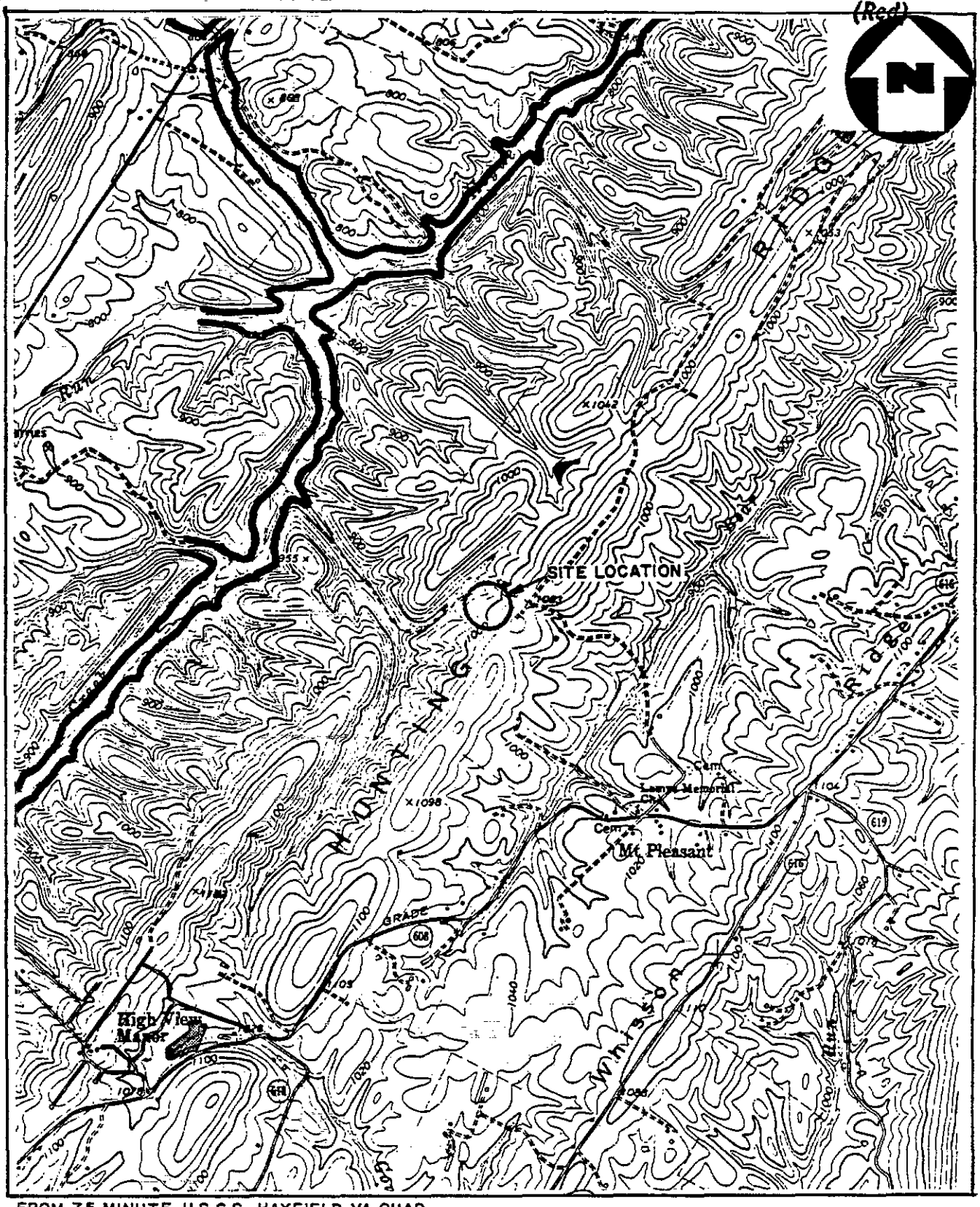
13. AUTHORIZING RPO: Harold G Byer (SIGNATURE) — 14. DATE: 3/23/84

15. RECEIVED BY: ☐ ACCEPTED ☐ ACCEPTED WITH EXCEPTIONS ☐ REJECTED
(CONTRACTOR RPM SIGNATURE) — 16. DATE: 3/26/84

Sheet 1 White – FITL Copy
Sheet 2 Canary – DPO Copy
Sheet 3 Pink – Contracting Officer's Copy (Washington, D. C.)
Sheet 4 Goldenrod – Project Officer's Copy (Washington, D. C.)

APPENDIX B

ORIGINAL
(Red)



FROM 7.5 MINUTE U.S.G.S. HAYFIELD, VA. QUAD.

FIGURE 1

SITE LOCATION MAP

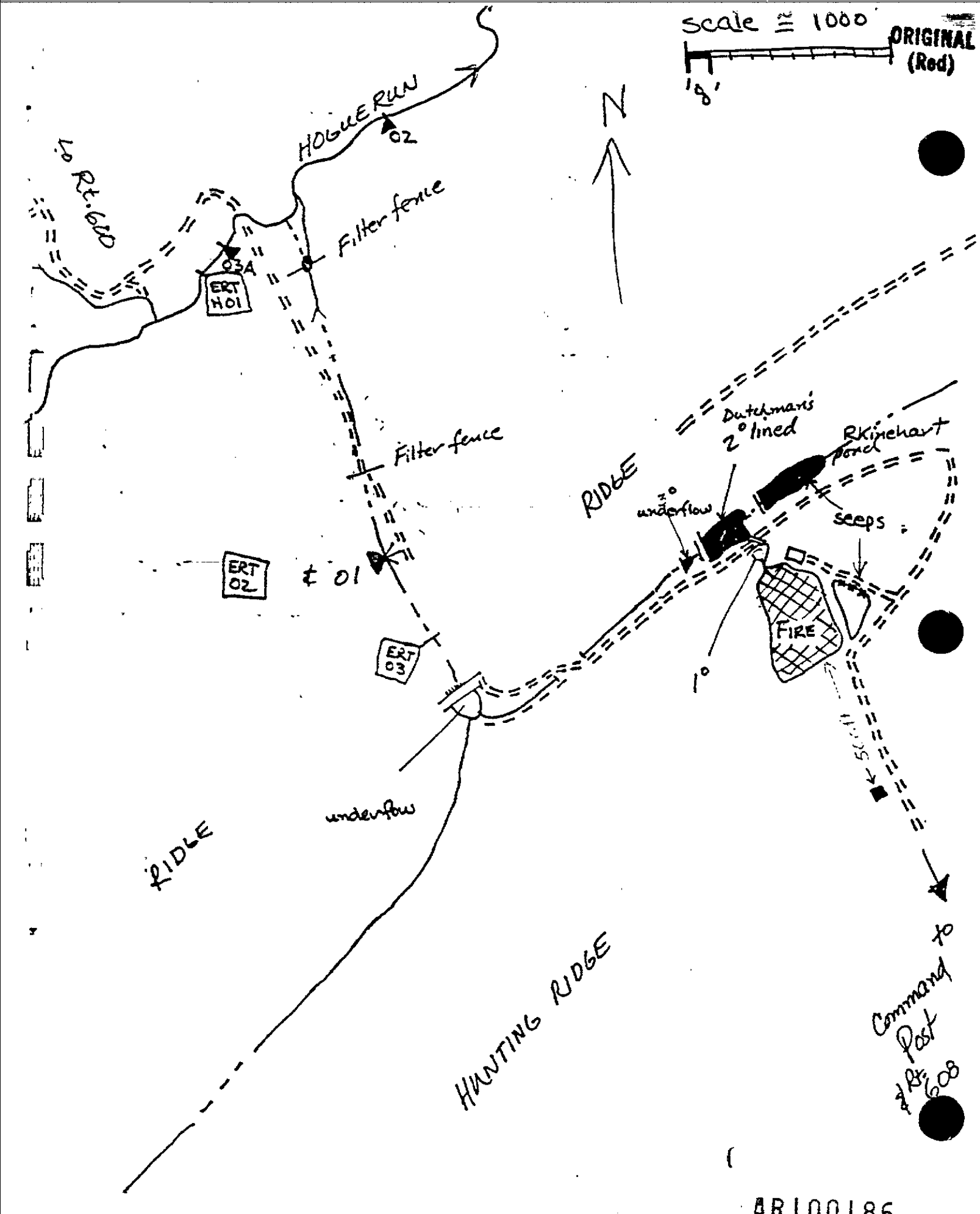
RHINEHART TIRE DUMP, WINCHESTER, VA.

(NO SCALE)

NUS CORPORATION

A Halliburton Company

AR100185


scale ≅ 1000'
ORIGINAL (Red)
N
HOGUE RUN
02
to Rt. 660
Filter fence
03A
ERT H01
Filter fence
ERT 02
℄ 01
ERT 03
RIDGE
Dutchman's 2° lined
Rkinehart pond
3° underflow
seeps
FIRE
1°
underflow
RIDGE
HUNTING RIDGE
to Command Post & Rt. 608

APPENDIX C

ORIGINAL
(Red)

COMMONWEALTH of VIRGINIA

STATE WATER CONTROL BOARD

Valley Regional Office
116 North Main Street
P.O. Box 268
Bridgewater, Virginia 22812
(703) 828-2595

17 January 1984

Richard N. Burton
Executive Director

Post Office Box 11143
Richmond, Virginia 23230
(804) 257-0056

Mr. Darius C. Ostrauskos
Environmental Scientist -
Super Fund Branch
U.S. Environmental Protection Agency
Region III
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Ostrauskos:

Attached are copies of lab data on water samples taken at the Tire Fire site in Frederick County. The data was performed by the State. Lab. Please note that the date which the lab received the samples is the next day following the sampling.

These are all of the data which I have. As more is received, a copy will be forwarded.

Very truly yours,

R. F. Tesh

R. F. Tesh, Director
Division of Surveillance
and Field Studies

Ref: 3AW22.

jes

Attachment

cc: VRO File
Harry Allen
EPA-ERT
Raritan Depot, Bldg. 10, Woodbridge Ave.
Edison, NJ 08837

Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

November 28, 1983

TO: Ray Tesh
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 22312

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-04-83

Identification No.:

Lab #: 10583-10587

Submitted By: Dave Chance

Analyst: James C. Peterson, Ph.D.

Description:

10583--Unnamed tributary to Hogue Creek
Upper portion unnamed tributary--pool of collected product

10584--Unnamed tributary to Hogue Creek
Free flowing stream upper portion, just above big pool of product

10585--X-tributary Hogue Creek
Lower portion unnamed tributary from fire site

10586--Hogue Creek Control
Hogue Creek just above confluence with unnamed tributary from fire site

10587--Hogue Creek
Hogue Creek downstream from confluence with unnamed tributary from fire site

Results:

Priority Pollutants	10584	10585	10586	10587
Benzene	0.9ug/L	1.3ug/L	0.3ug/L	0.5ug/L
Toluene	1.7ug/L	2.3ug/L	<0.2ug/L	<0.2ug/L
Ethylbenzene	4.6ug/L	1.2ug/L	0.8ug/L	<0.2ug/L
Xylenes	2.4ug/L	0.6ug/L	<0.2ug/L	<0.2ug/L
Naphthalene	30 ug/L	10 ug/L	<1 ug/L	<1 ug/L
Fluorene	13 ug/L	4.6ug/L	<1 ug/L	<1 ug/L
Phenanthrene	4.1ug/L	2.0ug/L	<1 ug/L	<1 ug/L
Caprolactam	13 mg/L	4.8mg/L	140 ug/L	210 ug/L

Other Components Identified in 10584, 10585, 10586, 10587:
Benzonitrile, Acetophenone, Tolunitrile, Phthalonitrile, Benzothiazole, Methyl benzothiazole, 1-methyl naphthalene, C_3 benzenes, C_4 benzenes

Sample 10583 was redundant with 10584 and was not analyzed.

James C. Peterson

STATE OF VIRGINIA
CITY/COUNTY OF _____, to-wit.

THIS day personally appeared before me _____ a notary public, in and for said city/county in the Commonwealth of Virginia _____, who signed the foregoing Certificate of Analysis, before me, and after being duly sworn, made oath (1) that he performed the analysis and/or examination the results of which are herein contained, (2) that said analysis and/or examination was performed in a laboratory operated by the Division of Consolidated Laboratory Services of the Commonwealth or authorized by such Division to conduct such analysis and/or examination and (3) that this Certificate of Analysis is true and correct.

Given under my hand this _____ day of _____, 19____

_____ Notary Public

My commission expires _____, 19____

DCLS-03-063

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

November 28, 1983

TO: Ray Tesh
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 22312

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-14-83

Identification No.:

Lab #: S83-695 through S83-700

Submitted By: Ray Miller

Analyst: James C. Peterson, Ph.D.

Description:
S83-695 -- Site 01, tributary
S83-696 -- Site 02, downstream
S83-697 -- Site 03, upstream
S83-698 -- Site 03a, upstream
S83-699 -- Site 04, confluence
S83-700 -- VOA blank

Results:

Priority Pollutants	695	696	697	698	699	700
Benzene	1.5ug/L	0.3ug/L		<0.2ug/L		<0.2ug/L
Toluene	3.3ug/L	0.3ug/L		<0.2ug/L		<0.2ug/L
Ethylbenzene	9.1ug/L	0.2ug/L		<0.2ug/L		<0.2ug/L
Xylenes	7.6ug/L	0.3ug/L		<0.2ug/L		<0.2ug/L
Naphthalene	56 ug/L	<1 ug/L	< 1ug/L	<1 ug/L	<1 ug/L	<1 ug/L
Acenaphthalene	22 ug/L	<1 ug/L	< 1ug/L	<1 ug/L	1.0ug/L	<1 ug/L
Acenaphthene	26 ug/L	<1 ug/L	< 1ug/L	<1 ug/L	1.6ug/L	<1 ug/L
Fluorene	13 ug/L	<1 ug/L	< 1ug/L	<1 ug/L	<1 ug/L	<1 ug/L
Phenanthrene	6 ug/L	<1 ug/L	< 1ug/L	<1 ug/L	<1 ug/L	<1 ug/L
Caprolactam	8.5mg/L	1.6mg/L	140ug/L	<1 ug/L	9.0mg/L	<1 ug/L

(697 and 699: no volatile sample)

Other Components Identified in 695, 696, 699:
Benzonitrile, Acetophenone, Tolunitrile, Benzothiazole, Methylbenzothiazole, 1-methyl naphthalene, C_3 benzenes, C_4 benzenes

STATE OF VIRGINIA
CITY/COUNTY OF _____ to-wit:

James C. Peterson

THIS day personally appeared before me _____ a notary public, in and for said city/county in t
Commonwealth of Virginia _____ who signed the foregoing Certificate of Analysis, before me, and after being duly sworn, made oath (
that he performed the analysis and/or examination the results of which are herein contained, (2) that said analysis and/or examination was performed in a laboratory operate
by the Division of Consolidated Laboratory Services of the Commonwealth or authorized by such Division to conduct such analysis and/or examination and (3) t Ce
tificate of Analysis is true and correct

Given under my hand this _____ day of _____, 19___.

_____ Notary Publ

My commission expires _____, 19___

AR100190

DCLS-03-063

Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

November 28, 1983

TO: Ray Tesh
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 22312

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-17-83

Identification No.:

Lab #: S83-722-724

Submitted By: Ray Miller

Analyst: James C. Peterson, Ph.D.

Description: unnamed trib
S83-722--Site 01, Masey Run
S83-723--Site 02, Hogue Creek
S83-724--Site 02a, Rt. 614 bridge

Results:
Priority Pollutants (Volatiles Only)

	722	723	724
Benzene	1.1ug/L	<0.2ug/L	<0.2ug/L
Toluene	7.2ug/L	0.2ug/L	<0.2ug/L
Ethylbenzene	13.4ug/L	0.2ug/L	<0.2ug/L
Xylenes	26.9ug/L	0.5ug/L	<0.2ug/L

STATE OF VIRGINIA
CITY/COUNTY OF _____, to-wit:

James C. Peterson

THIS day personally appeared before me _____ a notary public, in and for said city/county in the Commonwealth of Virginia, _____ who signed the foregoing Certificate of Analysis, before me, and after being duly sworn, made oath (1) that he performed the analysis and/or examination the results of which are herein contained, (2) that said analysis and/or examination was performed in a laboratory operated by the Division of Consolidated Laboratory Services of the Commonwealth or authorized by such Division to conduct such analysis and/or examination and (3) that this Certificate of Analysis is true and correct.

Given under my hand this ____ day of _____ 19__

_____ Notary Public

My commission expires _____ 19__

DCLS-03-063

AR100191

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

CERTIFICATE OF ANALYSIS

December 5, 1983

TO: Ray Tesh
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 23212

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-18-83

RECEIVED
DEC 8 1983
BY
NORTHERN REGIONAL OFFICE

Identification No.:

Lab #: S83-770-772

Submitted By: Ray Miller, SWCB

Analyst: Mike Martin

M Z. Martin

Description:
S83-770: Site 01, water from pool on ~~Massey Run~~ unnamed trib
S83-771: Site 02, water, 100 yards downstream of confluence of ~~Massey Run~~ unnamed trib and Hogue Creek
S83-772: Site 02A, water at Rt. 614 bridge, Hogue Creek

Request: Volatile priority pollutants

Results:

Priority Pollutants	770	771	772
Benzene	2.0ug/L	<0.2	<0.2
Toluene	5.1	<0.2	<0.2
Ethyl benzene	6.0	0.8	<0.2
Xylenes	18.1	<0.2	<0.2

RECEIVED
DEC 14 1983
VALLEY REGIONAL OFFICE

DCLS-03-063 A

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

December 5, 1983

TO:
Ray Tesh
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 23212

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-21-83

RECEIVED
DEC 3 1983
BY
NORTHERN REGIONAL OFFICE

Identification No.:

Lab #: S83-767-769

Submitted By: Ray Miller, SWCB

Analyst: M. E. Martin
Mike Martin

Description:
S83-767: Site 01, water from pool on ~~Massey Run~~ unnamed trib
S83-768: Site 02, water, 100 yards downstream of confluence with ~~Massey Run~~ unnamed trib on Hogue Creek
S83-769: Site 02A, water at Rt. 614 brodge, Hogue Creek

Request: Volatile priority pollutants

Results:

Priority Pollutants	767	768	769
Benzene	0.5ug/L	0.2	<0.2
Toluene	1.1	<0.2	<0.2
Ethyl benzene	3.5	<0.2	<0.2
Xylenes	3.3	<0.2	<0.2

RECEIVED
DEC 14 1983
VALLEY REGIONAL OFFICE

DCLS-03-063 A

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

December 22, 1983

TO: Ray Tesh
Valley Regional Office
State Water Control Board
P. O. Box 268
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-30-83

Identification No.:

Lab #:

Submitted By: REM

Analyst: J. C. Peterson
J. C. Peterson, Ph.D.

Description:
11178, 11187: Station 01, approximately 1500 ft. upstream of confluence with Hogue Cree
11179, 11188: Station 02, 100 yds. downstream of confluence with Massey Run
11180, 11192: Station 02A, at Rt. 614 bridge (gauging station) un-named trib.

Results:

Priority Pollutants	01	02	02A
Benzene	5.1 ug/L	<0.2ug/L	0.2 ug/L
Toluene	10.9	0.3	<0.2
Ethyl benzene	1.9	1.0	1.7
Xylenes	5.9	<0.2	<0.2
Naphthalene	20.	<1.	<1.
Phenol	460.	6.8	1.0

No other priority pollutants were detected (Limit of Detection = 0.2 to 5ug/L)

Other Contaminants*			
2(2-n-butoxyethoxy)ethanol	9.7 mg/L	110. ug/L	23. ug/L
benzothiazole	380. ug/L	2.7ug/L	3.7 ug/L
caprolactam	12.9 mg/L	110. ug/L	84. ug/L
2-methylbenzothiazole	180. ug/L	1.2ug/L	2.3 ug/L
Benzoic Acid	10. mg/L	16.6ug/L	1.5 ug/L

*Confirmed by GC/MS with authentic standards.

Other major contaminants identified by GC/MS, not yet confirmed with authentic standards: phenylisocyanate, hexanedinitrile, N,N dimethylbenzamide, 3-methylbenzoic acid, cyanobenzoic acid.

DCLS-03-063 A

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

CERTIFICATE OF ANALYSIS

December 23, 1983

TO: Ray Tesh
Valley Regional Office
State Water Control Board
P. O. Box 268
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 12-07-83

Identification No.:

Lab #:

Submitted By: REM, D. Wright

Analyst: J. C. Peterson, Ph.D.

Description:
11400, 11404, 11408: Station 01, approximately 1500 ft. upstream of confluence with Hogue Creek
11401, 11405, 11409: Station 02, 100 yds. downstream of confluence with ~~Massey Run~~ un-named trib
11402, 11406, 11410: Station 02A, at Rt. 614 bridge (gauging station)
11399, 11403, 11407: Rhinehart's Pond (R.P.)

Results:

Priority Pollutants	R.P.	01	02	02A
Benzene	141 ug/L	4.7 ug/L	0.5 ug/L	1.1ug/L
Toluene	171	9.4	0.7	<0.2
Ethylbenzene	112	7.6	0.5	<0.2
Xylenes	88	7.1	0.4	<0.2
Naphthalene	100	14	2.0	1.1
Acenaphthylene	350 ppb	51	3.2	<2
Phenol	2.7 mg/L	260	5.1	<2

No other priority pollutants were detected (Limit of Detection: 0.2 to 5ug/L)

Other Contaminants*

2(2-n-butoxyethoxy)ethanol	9.7 mg/L	1.6 mg/L	190 ug/L	100 ug/L
benzothiazole	2.2 mg/L	320 ug/L	49 ug/L	30 ug/L
caprolactam	66 mg/L	11 mg/L	340 ug/L	210 ug/L
2-methylbenzothiazole	560 mg/L	230 ug/L	16 ug/L	11 ug/L
benzoic acid	27 mg/L	8.8 mg/L	200 ug/L	<2 ug/L

*confirmed by GC/MS with authentic standards

Other contaminants identified by GC/MS, not yet confirmed with authentic standards: phenylisocyanate hexanedinitrile, N,N dimethylbenzamide, 3-methylbenzoic acid, cyanobenzoic acid.

RECEIVED
DEC

VALLEY REGIONAL OFFICE

DCLS-03-063 A

AR100195

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

CERTIFICATE OF ANALYSIS

December 22, 1983

TO: Ray Tesh
Valley Regional Office
State Water Control Board
P. O. Box 268
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: December 13-14, 1983

Identification No.:

Lab #: 134-151, 152, 153, 148, 150, 149

Submitted By:

Analyst: J. C. Peterson, Ph.D.

RECEIVED
DEC 29 1983
VALLEY REGIONAL OFFICE

Description:
11704, 11708 Donald Swaner well 134-151
11705, 11709 Robinson well 134-152
11706, 11710 W. T. Rhinehart well 134-153
11628, 11629 Rhinehart spring 134-148
11631—11632 Palmer well 134-150
11634—11635 Pigeon well 134-149 PC84-196

Results:

Priority Pollutants	134-151	152	153	148	150	149
Benzene	<0.2ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	0.8	0.3	<0.2	<0.2	<0.2	<0.2
Ethyl benzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Xylenes	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	<1	<1	<1	<1	<1	<1

No other priority pollutants were detected (Limit of Detection = 0.2 to 5ug/L)

No non-priority pollutant tire fire constituents normally found in Hogue Creek and Massey Run were detected in these well waters. (Limit of Detection = 1 to 10ug/L)

STATE OF VIRGINIA
CITY/COUNTY OF Richmond, to-wit:

J. C. Peterson

THIS day personally appeared before me Helen Shaw a notary public, in and for said city/county in the Commonwealth of Virginia J. C. Peterson who signed the foregoing Certificate of Analysis, before me, and after being duly sworn, made oath (1) that he performed the analysis and/or examination the results of which are herein contained, (2) that said analysis and/or examination was performed in a laboratory operated by the Division of Consolidated Laboratory Services of the Commonwealth or authorized by such Division to conduct such analysis and/or examination and (3) the Certificate of Analysis is true and correct.

Given under my hand this 22 day of Dec 1983

Helen Shaw Notary Public

My commission expires May 18 1987

AR100196

DCLS-03-063

ORIGINAL
(Red)

COMMONWEALTH of VIRGINIA

STATE WATER CONTROL BOARD

Richard N. Burton
Executive Director

Post Office Box 11143
Richmond, Virginia 23230
(804) 257-0056

Valley Regional Office
116 North Main Street
P.O. Box 268
Bridgewater, Virginia 22812
(703) 828-2595

13 February 1984

Mr. Darius C. Ostrauskos
Environmental Scientist -
Super Fund Branch
U. S. Environmental Protection Agency
Region III
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Ostrauskos:

Attached are copies of lab data on water samples taken at the Tire Fire site in Frederick County. The data was performed by the State Lab. Please note that the date which the lab received the samples is the next day following the sampling.

These are all of the data which I have received since I last corresponded on 17 January 1984. As more is received, a copy will be forwarded to update your file.

Very truly yours,

R F Tesh

R. F. Tesh, Director
Division of Surveillance
and Field Studies

jes

Attachment

cc: VRO File

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

February 2, 1984

TO: Ray Tesh
Valley Regional Office
116 N. Main Street
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 01-05-84

Identification No.: 134-156, 134-157

Lab #: 14, 15, 16, 17, 18, 19

Submitted By: RWB

Analyst: James C. Peterson, Ph.
Michael F. Martin

James C. Peterson
Michael F. Martin

Description:
14, 17: Hogue Creek station (02A)
15, 18: Leonard Hartman well (C&H Market) (134-156)
16, 19: Emmert Boyce well (E&M process) (134-157)

Results:

Priority Pollutants	02A	134-156	134-157
Benzene	<0.2ug/L	<0.2ug/L	<0.2ug/L
Toluene	<0.2	<0.2	<0.2
Ethylbenzene	<0.2	<0.2	<0.2
Xylenes	<0.2	<0.2	<0.2
Naphthalene	0.2	<1	<1
Acenaphthylene	<1	<1	<1
Phenol	<1	<1	<1

No other priority pollutants were detected (limit of detection - 0.2 to 5ug/L)

Other Contaminants*	02A	134-156	134-157
Cyanobenzene	3.4ug/L	<0.2ug/L	<0.2ug/L
2(2-n-butoxyethoxy)ethanol	4.2	<1	<1
Benzothiazole	3.6	<0.2	<0.2
Caprolactam	53	<5	<5
2-methylbenzothiazole	2.3	<0.2	<0.2
Benzoic Acid	6.4	<1	<1
N,N dimethylbenzamide	1.0	<0.2	<0.2

*confirmed by GC/MS with authentic standards

Significant contaminants identified by GC/MS in sample 02A, not yet confirmed with authentic standards: hexanedinitrile, 3-methylbenzoic acid (3-toluic acid) cyanobenzoic acid.

FEB

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

CERTIFICATE OF ANALYSIS

February 1, 1984

TO: Ray Tesh
Valley Regional Office
State Water Control Board
P. O. Box 268
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 01-06-84

Identification No.: 134-158, 134-159, 134-160, 134-161

Lab #: 70, 71, 72, 73, 74, 75, 76

Submitted By:

Analyst: James C. Peterson, Ph.D.
Michael F. Martin

Description:
70, 74: G. Whitacre, Box 208 Mt. Falls, Winchester, VA (134-160)
71, 75: Gerald Phelps, Box 198 Mt. Falls, Winchester, VA (134-161)
72, 76: Vivian Rosenberger well, Box 180 Mt. Falls, Winchester, VA (134-158)
73: Pete Kerns well (Pete's Auto) (134-159)
(no extractable sample received)

Results:

Priority Pollutants	160	161	158	159
Benzene	<0.2ug/L	<0.2ug/L	<0.2ug/L	<0.2ug/L
Toluene	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	<0.2	<0.2	<0.2	<0.2
Xylenes	<0.2	<0.2	<0.2	<0.2
Naphthalene	<1	<1	<1	<1
Acenaphthylene	<1	<1	<1	<1
Phenol	<1	<1	<1	<1

No other priority pollutants were detected (limit of detection - 0.2 to 5ug/L)

No non-priority pollutant tire fire constituents normally found in Hogue Creek and Massey Run were detected in these well waters (limit of detection - 0.2 to 10ug/L)

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

February 3, 1984

TO: State Water Control Board
Valley Regional Office
P. O. Box 268
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-5736

Date Received: 11-14-83

Identification No.:
01--tributary
02--downstream
03--upstream
3A--upstream
04--confluence
Submitted By: YOA--blank

Lab #: S83-695 through S83-700

Analyst: Jim Anderson

Description:

Item 3: plastic bottles identified as 01, 02, 03, 3A, 04 and YOA Blank of liquid

Results:

Cadmium on samples (01, 02, 03, 3A, 04 and YOA) was found at a level of less than 10ug/L.

RECEIVED
FEB 7 1984
VALLEY REGIONAL OFFICE

STATE OF VIRGINIA
CITY/COUNTY OF Rockingham, to-wit:

THIS day personally appeared before me [illegible] a notary public, in and for said city/county in the Commonwealth of Virginia, [illegible], who signed the foregoing Certificate of Analysis, before me, and after being duly sworn, made oath (1) that he performed the analysis and/or examination the results of which are herein contained, (2) that said analysis and/or examination was performed in a laboratory operated by the Division of Consolidated Laboratory Services of the Commonwealth or authorized by such Division to conduct such analysis and/or examination and (3) that the Certificate of Analysis is true and correct.

Given under my hand this [illegible] day of [illegible] 1984

[illegible] Notary Public

My commission expires [illegible] 19[illegible]

Page [illegible] Of [illegible]

DCLS-03-063

AR100200

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

January 9, 1984

TO: Ray Tesh
Valley Regional Office
State Water Control Board
P. O. Box 268
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 12-20-83

RECEIVED
JAN 19 1984
VALLEY REGIONAL OFFICE

Identification No.:

Lab #:

Submitted By: REM

Analyst: James C. Peterson, Ph.D.

Description:
11854, 11859: Hogue Creek, site 3A
11855, 11860: Hogue Creek, site 02
11856, 11861: X tributary, site 01
11857, 11862: Hogue Creek, site 2A, gauge 1.11'
11858, 11863: Agnes Rosenberger (spring) Box 175, Mt. Falls Road, Winchester

Results:

Priority Pollutants	3A	02	01	02A	Spring
Benzene	<0.2	<0.2	0.6ug/L	<0.2	<0.2
Toluene	<0.2	<0.2	2.2	<0.2	<0.2
Ethylbenzene	<0.2	<0.2	0.8	<0.2	<0.2
Xylenes	<0.2	<0.2	1.0	<0.2	<0.2
Naphthalene	<1	<0.3	27 ug/L	<0.3	<1
Acenaphthylene	<1	<1	11 ug/L	<1	<1
Phenol	<1	2.6ug/L	130 ug/L	<1	<1

No other priority pollutants were detected (Limit of Detection = 0.2 to 5ug/l)

Other Contaminants*	03A	02	01	02A	Spring
2(2-n-butoxyethoxy)ethanol	<1ug/L	61ug/L	3.1mg/L	3.3ug/L	<1ug/L
benzothiazole	<0.2	12	720 ug/L	2.5ug/L	<0.2
caprolactam	<5	250	9.7mg/L	44 ug/L	<5
2-methylbenzothiazole	<0.2	5.2	300 ug/L	1.0ug/L	<0.2
benzoic acid	<1ug/L	260	5.6mg/L	27 ug/L	<1ug/L
cyanobenzene	<0.2	12	1.3mg/L	2.6ug/L	<0.2
N,N dimethylbenzamide	<0.2	2.2	100 ug/L	0.5ug/L	<0.2

*confirmed by GC/MS with authentic standards

Significant contaminants identified by GC/MS in samples from sites 02, 01, 02A, not yet confirmed with authentic standards: hexanedinitrile, 3-methylbenzoic acid, cyanobenzoic acid.

AR100201

ORIGINAL
(Red)

COMMONWEALTH of VIRGINIA

STATE WATER CONTROL BOARD
Valley Regional Office
116 North Main Street
P.O. Box 268
Bridgewater, Virginia 22812
(703) 828-2595

Richard N. Burton
Executive Director

st Office Box 11143
mond, Virginia 23230
804) 257-0056

26 March 1984

Mr. Darius C. Ostrauskos
Environmental Scientist -
Super Fund Branch
U. S. Environmental Protection Agency
Region III
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Ostrauskos:

Attached are copies of lab data on water samples taken at the Tire Fire site in Frederick County. The data was performed by the State Lab. Please note that the date which the lab received the samples is the next day following the sampling.

These are all of the data which I have received since I last corresponded on 13 February 1984. As more is received, a copy will be forwarded to update your file.

Very truly yours,

R. F. Tesh, Director
Division of Surveillance
and Field Studies

jes

Attachment

cc: VRO File

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

CERTIFICATE OF ANALYSIS

March 16, 1984

TO: Ray Tesh
Valley Regional Office
State Water Control Board
116 N. Main Street
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: ~~02-13-84~~ Error 2/14/84 & 2/16/84

Identification No.:

Corrections Noted by: R.F. Tesh

Lab #:

Submitted By:

Analyst: Paul W. Kohler
Michael F. Martin

Paul W. Kohler

Description:		Sampling Date
1054, 1060:	Rhineharts Pond	2/13/84
1055, 1061:	Rhineharts Spring	"
1056, 1062:	Station 03A, upstream of confluence	"
1057, 1063:	Station 02, downstream of confluence	"
1058, 1064:	Station 01	"
1059, 1065:	Station 02A, Rt. 614, bridge	"
1231, 1230:	Dutchman's pumpage	2/15/84 Flow estimated at 300 gp

Results: (in ug/l)

Priority Pollutants	Pond	Spring	03A	02	01	02A	Pumpage
Benzene	34	<0.2	<0.2	<0.2	0.2	<0.2	112
Toluene	82	<0.2	<0.2	<0.2	0.7	<0.2	204
Ethylbenzene	27	<0.2	<0.2	<0.2	0.7	<0.2	96
Xylenes	69	<0.2	<0.2	<0.2	1.3	<0.2	115
Naphthalene	870	<0.5	<0.5	<0.5	8.3	<0.5	900
Acenaphthalene	970	< .5	< .5	< .5	6.6	< .1	230
Phenol	84	<1	<1	<1	40	<1	120

No other priority pollutants were detected (Limit of Detection = 0.2 to 5ug/l)

Other Contaminants*							
Benzonitrile (Cyanobenzene)	7400	<0.5	<0.5	6.6	90	0.73	9400
2(2-n-butoxyethoxy) ethanol	2100	<1	<1	1.3	287	<1	116,000
Benzothiazole	5500	<0.5	<0.5	7.9	83	2.1	8700
Caprolactam	11,900	<1	<1	57	710	17.5	118,000
2-Methylbenzo-thiazole	290	<0.5	<0.5	3.9	48	1.6	3300
N,N-dimethyl-benzamide	130	<0.5	<0.5	2.5	18	0.56	990
Benzoic Acid	11,700	<1	<1	13	410	<1	143,000
p-toluic Acid	1,700	<1	<1	13	210	1.9	15,000
3-Cyanobenzoic Acid	910	<1	<1	3.2	38	<1	560

*Confirmed by GC/MS with authentic standards 1 0 1

ARI00203

DCLS 03 063 A

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

March 5, 1984

TO: Ray Tesh
Valley Regional Office
State Water Control Board
116 N. Main Street
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 01-27-84

Identification No.:

Lab #:

Submitted By:

Analyst: Paul W. Kohler
Michael F. Martin

Description:
558, 561: well #134-111, Holme Smoke
559, 562: well #134-162, Ola M. Racey
560, 563: well #134-170, Gilbert Puffenberger
564: well #134-152, Alfred Robinson

Results:

Priority Pollutants	134-111	134-162	134-170	134
Benzene	<0.2	<0.2	<0.2	<0.2
Toluene	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	<0.2	<0.2	<0.2	<0.2
Xylenes	<0.2	<0.2	<0.2	<0.2
Naphthalene	<0.2	<0.2	<0.2	*NR
Phenol	<1	<1	<1	NR

*Not requested

No other priority pollutants were detected (Limit of Detection = 0.2 to 5ug/l).

No other contaminants normally associated with Hogue Creek were detected (Limit of Detection = 1 to 5ug/l).

RECEIVED
MAR 12 1984
VALLEY REGIONAL OFFICE

DCLS 03 '83 A

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

February 27, 1984

TO: Ray Tesh
State Water Control Board
Valley Regional Office
116 N. Main Street
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

RECEIVED
MAR 2 1984

Date Received: 02-01-84

Identification No.:

Lab #:

VALLEY REGIONAL OFFICE

Submitted By: RWB Sampled 1-31-84

Analyst: Michael F. Martin
Paul W. Kohler

Michael F. Martin
P. W. Kohler

Description:

699, 706:	Station 02A	Route 614 bridge flow 17.3 cfs
700, 707:	Station 03A	Upstream of confluence
701, 708:	Station 02	Downstream of confluence
702, 709:	Station 01	Downstream of confluence
703, 710:	TF-2S	Test well
704, 711:	TF-2D	Test well
705, 712:	TF-1	Test well

Results:

Priority Pollutants	02A	03A	02	01	TF-2S	TF-2D	TF-1
Benzene	<0.2ug/l	<0.2ug/l	<0.2ug/l	0.3 1ug/l	3.3ug/l	<0.2ug/l	0.2 1ug/l
Toluene	<0.2	<0.2	<0.2	1.2	6.8	<0.2	<0.2
Ethylbenzene	<0.2	<0.2	<0.2	2.7	10	<0.2	<0.2
Xylenes	<0.2	<0.2	<0.2	1.5	16	<0.2	0.43
Naphthalene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenol	<1.0	<1.1	<1.2	9.7	<0.2	<0.2	0.2

No other priority pollutants were detected (Limit of Detection = 0.2 to 5ug/l)

Other Contaminants*							
Cyanobenzene	<0.5ug/l	<0.5ug/l	1.2ug/l	52 ug/l	<0.5ug/l	<0.5ug/l	<0.5 ug/l
2(2-n-butoxyethoxy) ethanol	<1	1.5	6.9	.1 1mg/l	0.2 mg/l	<1	<1
Benzothiazole	1.6	<0.5	6.07	56ug/l	< .5ug/l	<0.5	< .5
Caprolactam	13.	1.9	32.	1.1mg/l	4.1mg/l	2.7	<1
2-methylbenzothiazole	0.82	≤0.5	2.7	25ug/l	<0.5ug/l	<0.5	<0.5
Benzoic Acid	<1	<1	<1	1.8mg/l	<1	<1	<1
N,N-dimethylbenzamide	<0.5	<0.5	0.6	4.3ug/l	<0.5	<0.5	<0.5
m-toluic acid	<1	<1	<1	5.8	<1	<1	<1
p-toluic acid	1.3	<1	<1	7.1	<1	1.0	<1
3-cyanobenzoic acid	3.7	<1	<1	2.2	3.04	<1	<1
4-cyanobenzoic acid	<1	<1	<1	6.9	2.21	<1	<1
2(2-n-butoxyethoxy) ethanoic acid	<1	<1	<1	<1	**0.6mg/l	<1	<1
p-tolunitrile	<0.5	<0.5	0.8	17.4	<0.5ug/l	<0.5	<0.

1 2

AR100205

ORIGINAL
(Red)

*Confirmed by GC/MS with authentic standards

**Contaminant identified by GC/MS but not yet confirmed with authentic standards: phthalonitrile, ethylbenzothiazole, dimethylquinoline, benzamide

Commonwealth of Virginia
Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

RECEIVED
FEB 22 1984
VALLEY REGIONAL OFFICE

CERTIFICATE OF ANALYSIS

February 16, 1984

TO: Ray Tesh
Valley Regional Office
State Water Control Board
P. O. Box 268
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 01-18-84

Identification No.:

Lab #: 304-311

Submitted By: REM sampled 1-17-84

Analyst: James C. Peterson
James C. Peterson
Michael F. Martin
Michael F. Martin

Description:
309, 305: Station 03A, upstream of confluence
308, 304: Station 02A, Rt. 614 bridge flow 8.06 cfs
310, 306: Station 01
311, 307: Station 02, downstream of confluence

Results:

Priority Pollutants	03A	02A	01*	02
Benzene	<0.2	<0.2	1.0	<0.2
Toluene	<0.2	<0.2	2.6	0.3
Ethylbenzene	<0.2	<0.2	2.5	<0.2
Xylenes	<0.2	<0.2	2.5	0.3
Naphthalene	<0.2	<0.2	----	<0.2
Phenol	<1	<1	----	<1

No other priority pollutants were detected (Limit of Detection - 0.2 to 5ug/L)

Other Contaminants*	03A	02A	01**	02
Cyanobenzene	<0.5	2.4	----	9.4
2(2-n-butoxyethoxy)ethanol	<2	0.7	----	22
Benzothiazole	<0.5	4.9	----	16
Caprolactam	<5	53	----	220
2-methylbenzothiazole	<0.5	1.6	----	6.0
Benzoic Acid	<1	<1	----	150
N,N dimethylbenzamide	<0.5	1.0	----	3.2
p-tolunitrile	<0.5	0.6	----	2.9

*Confirmed by GC/MS with authentic standards. Significant contaminants identified by GC/MS in samples from 02A and 02 not yet confirmed with authentic standards: hexanedinitrile, 3-methylbenzoic acid, cyanobenzoic acid.

**The 01 extractables bottle was broken prior to receipt at the Trace Organic Section.

Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

RECEIVED
FEB 28 1984
VALLEY REGIONAL OFFICE

CERTIFICATE OF ANALYSIS

February 2, 1984

TO: Ray Tesh
Valley Regional Office
116 N. Main Street
Bridgewater, VA 22812

ORIGINAL

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4808

Date Received: 01-05-84

Identification No.: 134-156, 134-157

Lab #: 14, 15, 16, 17, 18, 19

Submitted By: RWB sampled 1-4-84

Analyst: James C. Peterson, Ph.
Michael F. Martin

Description:
14, 17: Hogue Creek station (02A) Flow: 9.29 cfs
15, 18: Leonard Hartman well (C&H Market) (134-156)
16, 19: Emmert Boyce well (E&M process) (134-157)

RECEIVED FEB 1984 BSFS

Results:

Priority Pollutants	02A	134-156	134-157
Benzene	<0.2ug/L	<0.2ug/L	<0.2ug/L
Toluene	<0.2	<0.2	<0.2
Ethylbenzene	<0.2	<0.2	<0.2
Xylenes	<0.2	<0.2	<0.2
Naphthalene	0.2	<1	<1
Acenaphthylene	<1	<1	<1
Phenol	<1	<1	<1

No other priority pollutants were detected (limit of detection - 0.2 to 5ug/L)

Other Contaminants*	02A	134-156	134-157
Cyanobenzene	3.4ug/L	<0.2ug/L	<0.2ug/L
2(2-n-butoxyethoxy)ethanol	4.2	<1	<1
Benzothiazole	3.6	<0.2	<0.2
Caprolactam	53	<5	<5
2-methylbenzothiazole	2.3	<0.2	<0.2
Benzoic Acid	6.4	<1	<1
N,N dimethylbenzamide	1.0	<0.2	<0.2

*confirmed by GC/MS with authentic standards

Significant contaminants identified by GC/MS in sample 02A, not yet confirmed with authentic standards: hexanedinitrile, 3-methylbenzoic acid (3-toluic acid) cyanobenzoic acid.

DCLS 01 063 A

AR100208

APPENDIX D

12/29/83 ORIGINAL (Red)

AGENDA

I.	INTRODUCTION	-	Bruce Smith
II.	Technical Considerations & Approach Regarding the Fire	-	Bruce Smith
III.	Environmental Concerns	-	Dr. Harry Allen
IV.	Current Status of Operations	-	Thomas Massey
V.	Enforcement Considerations	-	Heather Gray

ORIGINAL (Red)

FREDERICK COUNTY, VIRGINIA TIRE FIRE

Technological Considerations and Approach Regarding the Fire

Background

In November, 1983 ERT developed a report entitled "Determination of Long Term Superfund Immediate Removal approaches for Frederick County Tire Fire". This report identified several possible options for dealing with the fire under the following three major categories:

I. Controlled Burning, Containment and Collection of Pyrolytic Tar (Status Quo)

II. Accelerated Burning of the Pile

III. Extinguish the Fire

On November 21, 1983, IT Enviroscience was tasked to do a feasibility study and cost estimate on the most viable options in each category. The resulting IT Report entitled "Report on Recommendation for the Frederick County Tire Fire" was made available to EPA Region III and the State on December 8, 1983, and is the basis for our current operating mode on scene. On December 9, 1983 EPA Region III held a meeting on scene with the State and various technical experts to discuss the findings of the report.

Findings of IT Report

I. Extinguish the fire - three options considered

A. Injection of gas such as Nitrogen or Carbon Dioxide to break the flow of air into the tire fire.

Rejected because:

1. distribution system needed to inject gases too uncertain
2. cost of gas prohibitive ($4 million minimum)
3. it could take up to 400 days to cool the pile, during which time the oil could continue to flow
4. volume of gas needed (2.3×10^9 scf)

B. Injection of steam (water) to cool tires to a temperature below the reignition point.

Rejected because:

1. actual test of this option proved unsuccessful

ORIGINAL
(Red)

C. Smother fire by covering it with dirt - this is the option recommended in IT's report - approximate cost $375,000.00

Temporarily rejected because:

1. property owner's consent would be required
2. EPA would be creating a landfill and possible leachate problems
3. cool down period may still be 400 days during which time the oil could continue to flow (the main problem at the site would still not be solved)
4. the oil flow from the site has steadily been decreasing (presently 1-4 gpm) and may stop in another month, making it unnecessary to extinguish the fire
5. covering the fire may prove too dangerous.

II. Accelerate Burning -

A. Injection of air into the pile to accelerate burning

Rejected because:

1. there would be a higher rate and quantity of air emissions
2. an extremely large air flow rate (200,000 - 400,000 scfm) would be needed to significantly reduce the burn rate. This would require a complex and expensive distribution system.

III. Status Quo -

A. Allow fire to burn, continue to contain and collect the tar

this is the option currently being practiced by the region because:

1. no environmental monitoring data collected so far indicates an immediate need to extinguish the fire
2. all of the options considered so far for extinguishing the fire have undesirable elements associated with them that argue in favor of maintaining status quo approach
3. the oil flow is decreasing to the point that it may stop shortly, or to the point that the oil can be dammed up in the fire - in which case the removal action will be over
4. the present collection system has successfully dealt with the principal contamination problem associated with this fire. Industry experts have recommended that the oil collection, not the fire be the main concern of the Agency.

In light of the options presented above, it is the Region's opinion that EPA should maintain status quo efforts for at least another month or two before making any decision on dealing with the fire. During this time, response costs will be scaled down to a "bare bones" operation, and other options for extinguishing the fire, which are outside the scope of the IT report, can be considered.

ORIGINAL

CHRONOLOGY of FUNDING REQUESTS and EXPLANATION of NEED

11/02/83 Regional Administrator approves $250,000.00 (limit of his funding authority) to initiate action.

11/04/83 On-Scene Coordinator (OSC) requests $500,000.00 ceiling increase but is granted only $225,000.00 by Headquarters that same day.

11/08/83 OSC requests $425,000.00 ceiling increase bringing project ceiling to $900,000.00 - NOTE: According to Removal Guidance OSC could not request an increase that would cause project ceiling to exceed $900,000.00 prior to requesting an exemption of the $1 million limitation on removals.

11/09/83 Ceiling increase granted by Headquarters.

11/14/83 Exemption to $1 million limitation requested.

11/17/83 Exemption granted - OSC is now free to request another ceiling increase.

11/17/83 OSC requests ceiling increase of $250,000.00 to deal with unanticipated wash out of containment structures due to heavy rains.

11/18/83 Ceiling increase granted.

11/21 - 12/09/83 Period of time during which ERT and IT are developing a report on the feasibility of putting ou the fire.

11/29/83 OSC requests ceiling increase of $200,000.00 in order to maintain site operations while awaiting completion of IT report. Recommendations of report will determine future course of action and cost.

12/01/83 Ceiling increase granted.

12/09/83 Report issued - EPA and State decide not to attempt to extinguish fire but to continue collection operation and enter into a planned removal.

12/20/83 OSC requests ceiling increase of $100,000.00 in order to carry on site operations while developing planned removal.

12/21/83 Headquarters approves only $35,000.00 increase.

APPENDIX E

Average Hydraulic Conductivities by Bouwer & Rice Method (4.6×10^{-4} cm/sec)
Overburden Wells 1S, 2S, 3S, 4S K = 5.4×10^{-6} ft/sec
Bedrock Wells 1D, 2D, 4D K = 1.4×10^{-4} ft/sec
(4.1×10^{-3} cm/sec)

4-6 ORIGINAL (Red)

GROUND WATER TABLE ELEVATION DATA

Project Number- 9616.58

Project Location- Rhinehart Tire Fire, Winchester VA.

All measurements are in feet

Well Number	TF-1S	TF-1D	TF-2S	TF-2D	TF-3S	TF-4S	TF-4D
Well Depth	20.0	60.0	20.7	71.5	20.4	13.5	43.0
Screen Interval	10-20	—	10.7-20.7	—	10.4-20.4	8.5-13.5	—
Open Hole Interval	—	39-60	—	39.0-71.5	—	—	24-43
Grade Elev.	1057.10	1057.00	953.10	953.40	972.10	912.20	912.10
Casing Stickup	1.45	1.80	1.68	1.80	2.25	3.30	1.44
Casing Elev.	1058.55	1058.80	954.78	955.20	974.35	915.50	913.54
Date 2/9/84							
Depth to water	9.83	9.82	10.64	11.98	5.98	N.A.	N.A.
Water level elev.	1048.72	1048.98	944.14	943.22	968.45		
Date 2/10/84							
Depth to water	9.80	9.41	10.81	12.06	6.89	9.22	5.98
Water level elev.	1048.75	1049.39	943.97	943.14	967.46	906.28	908.46
Date 2/29/84							
Depth to water	6.76	7.61	10.20	12.24	4.66	7.52	4.77
Water level elev.	1051.79	1051.19	944.58	942.96	969.69	907.98	908.77
Date 3/1/84							
Depth to water	10.01	8.24	10.47	12.51	7.24	7.70	4.70
Water level elev.	1048.54	1050.56	944.31	942.69	967.11	907.80	908.84

Department of Co[illegible]
Division of Consolidated [illegible]

ORIGINAL
(Red)

CERTIFICATE OF [illegible]

Rhinehart Tire Fire

March 28, 1984

TO: Ray Tesh
Valley Regional Office
State Water Control Board
116 N. Main Street
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 03-02-84

Identification No.:

Lab #

Submitted By:

Analyst: Paul W. Kohler
Michael F. Martin

Description:
1763, 1772: Monitoring well, TF-2S
1764, 1773: Monitoring well, TF-2D
1765, 1774: Monitoring well, TF-4D
1766, 1775: Monitoring well, TF-4S
1767, 1776: Monitoring well, TF-3S
1768, 1777: Monitoring well, TF-1S
1769, 1778: Monitoring well, TF-1D
1770: Monitoring well, TF-Blank
1771, 1779: well, Virginia Snapp

Results: (in ug/l)
Priority Pollutants:

134-185

	TF-2S	TF-2D	TF-4D	TF-4S	TF-3S	TF-1S	TF-1D	Blank+	Well
Benzene	8.6	<0.2	6.4	69	3.3	<0.2	<0.2	<0.2	<0.2
Toluene	2.9	0.2	6.4	105	0.7	<0.2	<0.2	0.71	<0.2
Ethylbenzene	0.7	<0.2	<0.2	61	0.6	<0.2	<0.2	<0.2	<0.2
Xylenes	8.6	0.45	9.5	72	3.8	0.9	<0.2	0.26	<0.2
Naphthalene	3.3	0.81	4.5	3.9	3.5	< .5	< .5	< .5	<0.5
Acenaphthalene	< .5	< .5	1.2	0.89	< .5	< .5	< .5	< .5	<0.5
Phenol	<1	<1	2.2	58	<1	<1	<1	<1	<1

No other priority pollutants were detected (Limit of Detection = 0.2 to 5ug/l)
+ Blank was prepared and submitted by SWCB

Note Well 4S & 4D drilled through contaminated fill & may not represent true ground water quality T.S 4/84

RECEIVED
APR 2 1984
VALLEY REGIONAL OFFICE

ORIGINAL
(Red)

Other Contaminants*:

	TF-2S	TF-2D	TF-4D	TF-4S	TF-3S	TF-1S	TF-1D	Blank	Well
Benzonitrile (Cyanobenzene)	< .5	< .5	4.0	74	2.1	< .5	< .5	< .5	< .5
2(2-n-butoxyethoxy) ethanol	20	< 1	13	391	6.7	< 1	< 1	< 1	<1
2(2-n-butoxyethoxy) ethanoic acid	180	< 1	< 1	< 1	1	< 1	< 1	< 1	<1
Benzothiazole	2.1	< .5	8.6	63	2.6	< .5	< .5	< .5	< .5
Caprolactam	21	3.5	170	800	27	< 1	< 1	< 1	<1
2-Methylbenzothiazole	14	< .5	32	26	.5	< .5	< .5	< .5	< .5
N,N-dimethylbenzamide	2.4	< .5	3.0	9.6	3.1	< .5	< .5	< .5	< .5
Benzoic Acid	<1	< 1	27	300	< 1	< 1	< 1	< 1	<1
o-Toluic Acid	0.5	< 1	1.9	78	1.9	< 1	< 1	< 1	<1
3-Cyanobenzoic Acid	<1	< 1	< 1	52	1.0	< 1	< 1	< 1	<1

*Confirmed by GC/MS with authentic standards

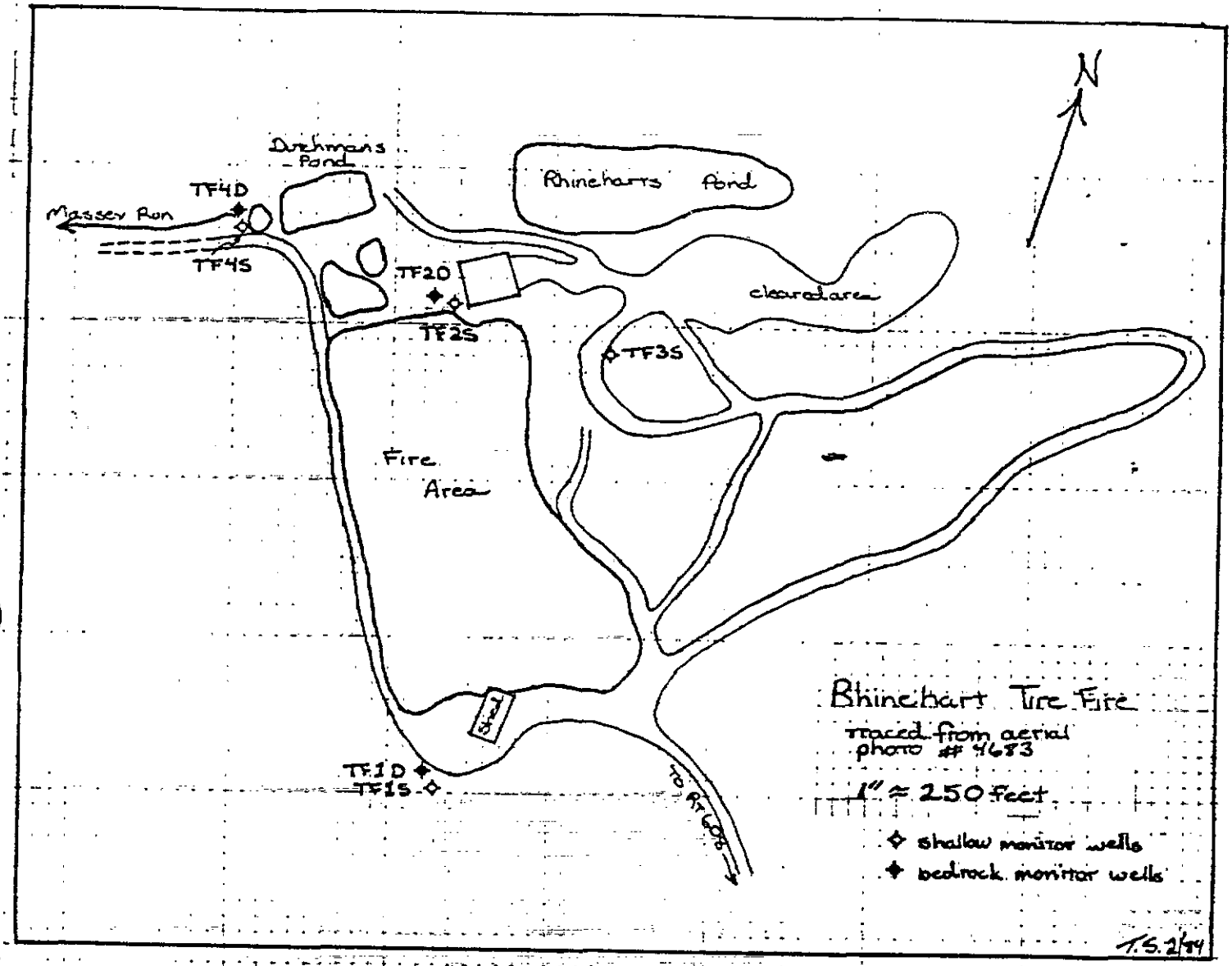
ORIGINAL
(Red)

erial Photo for
F xgraphic Survey
er mber 10 1983

Test Well Locations

AR100218

ORIGINAL
(Red)



AR100219

STONE EPA-IT ORIGINAL (Red)

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

DIVISION OF MINERAL RESOURCES

GEOLOGY AND MINERAL RESOURCES OF FREDERICK COUNTY

Charles Butts and
Raymond S. Edmundson

BULLETIN 80

VIRGINIA DIVISION OF MINERAL RESOURCES

James L. Calver
Commissioner of Mineral Resources and State Geologist

CHARLOTTESVILLE, VIRGINIA
1966

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

DIVISION OF MINERAL RESOURCES

James L. Calver

Commissioner of Mineral Resources and State Geologist

ORIGINAL (Red)

EXPLANATION

MISSISSIPPIAN

Mpg

Pocono (?) formation

Shale, sandstone, and conglomerate. Noted only in Shockeys Knob along the Virginia - West Virginia boundary.

DEVONIAN

Dhs

Hampshire formation

Chiefly red shale, mudrock, and sandstone.

Dch

Chemung formation

Chiefly gray shale and sandstone with thin conglomerates and a few red zones.

Db

Brallier formation

Greenish to brown micaceous shale with thin intercalated layers of fine-grained gray sandstone.

Dha

Hamilton formation

Dark-gray to olive-green fine-grained sandstone with interbedded dark-colored shale.

Dm

Marcellus shale

Dark-gray to black, fissile shale; weathers gray.

Don

Onondaga formation

Dark-green, non-fissile shale; in part calcareous.

Oriskany sandstone

Gray to white, coarse-grained, thick-bedded sandstone.

New Scotland limestone

ORDOVICIAN

O

Juniata form

Chiefly red shale or red, and thin-bedded, red, ark

Oswego form

Gray and greenish, thi grained sandstone and co

Omb

Martinsburg f

Brownish, fissile shale nated, fine-grained sands

Oe

Edinburg (Chamber formatic

Dark-gray to black, comp nodular layers, thin sills amounts of black shale.

Ol

Lincolnshire (Lenoi

Dark-gray, finely crystall stringers and nodules of b

New Market (Moshe

Dove-colored, compact, t stone.

Obe

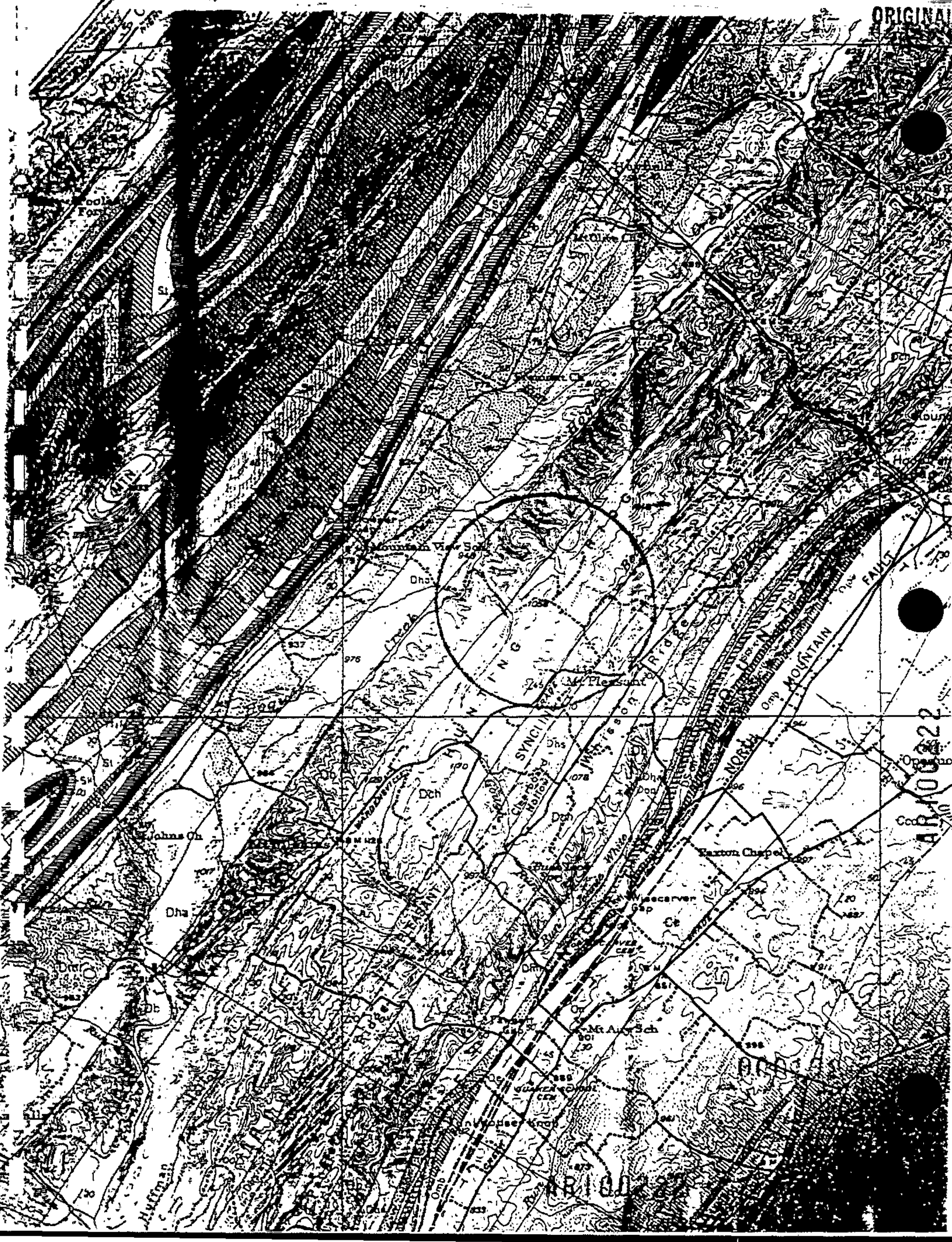
Bellefonte (Upper B formatio

Light to dark-colored lim crystalline gray dolomite.

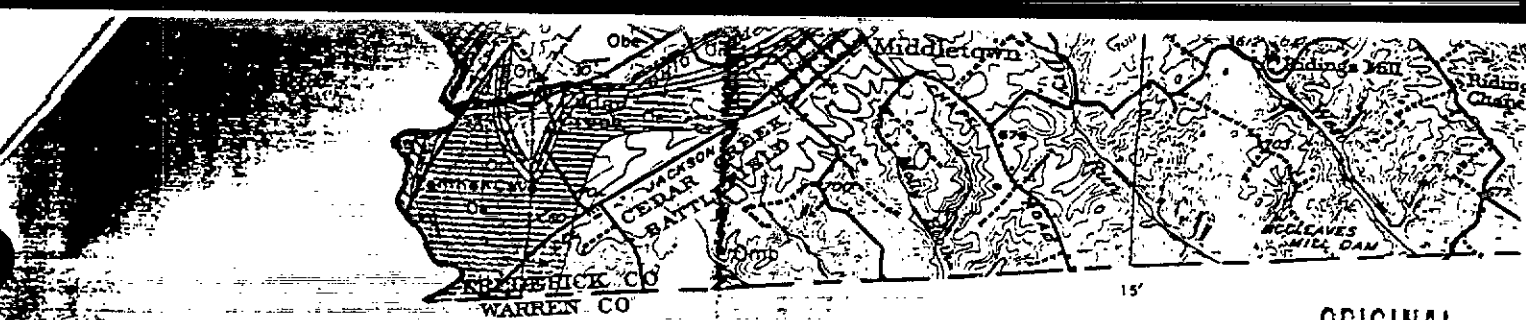
Nittany Lower Bee formation

Bluish-gray li stone wit of gray dolom

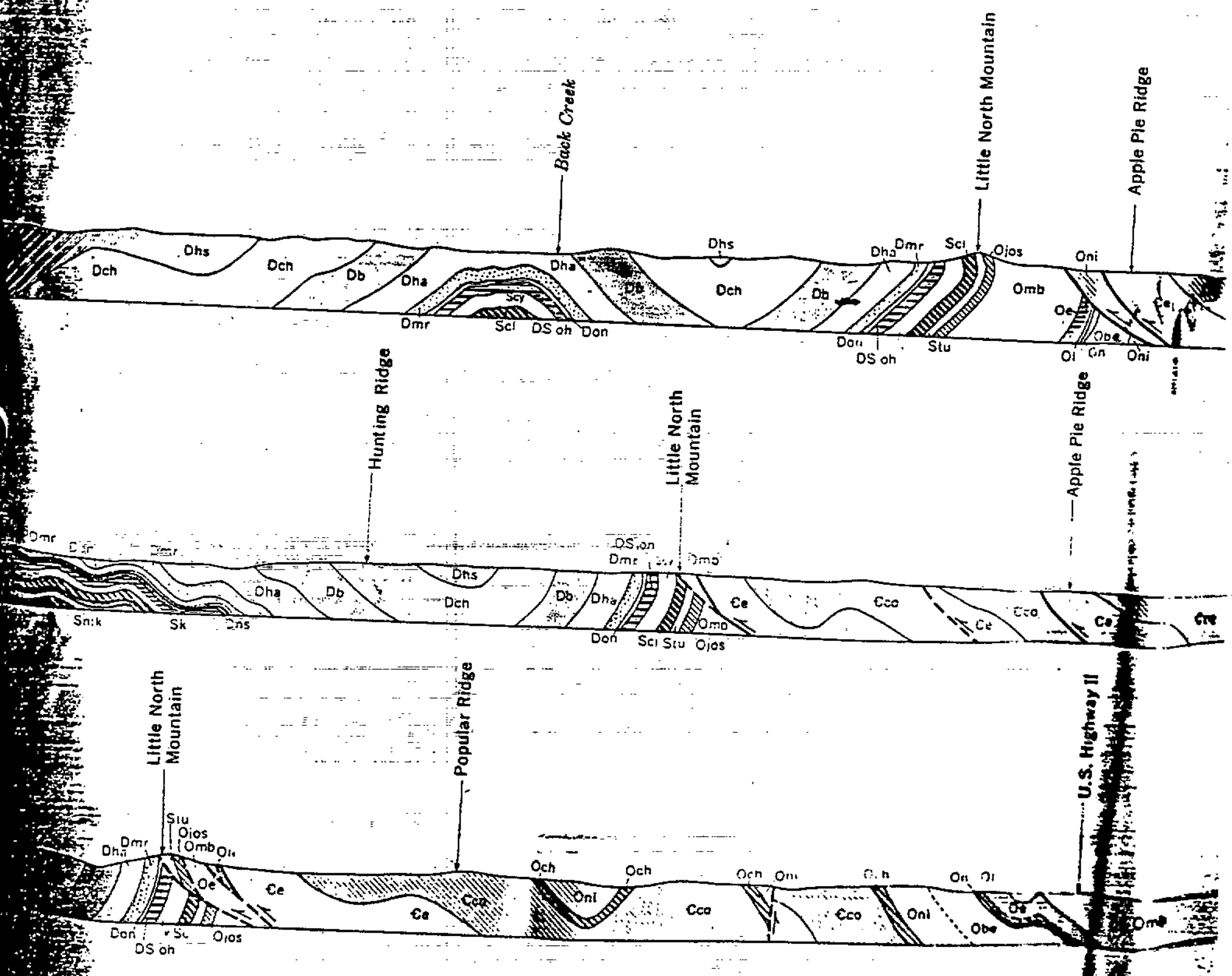
AR100221



AR100222



ORIGINAL
(Cont'd)



Structure Sections by Raymond S. Edmundson

AR100223

APPENDIX F

ORIGINAL
(Red)

NUS CORPORATION — TELECON NOTE

CONTROL NO:	DATE:	TIME:
	3/26/84	10:30 AM

DISTRIBUTION:
TO FILE

BETWEEN:	OF:	PHONE:
J. STEVEN DORRLER	CHIEF EPA - EMERG. RESP. BR.	(201) 321-6600

AND: DAVE KINDIG (NUS)

DISCUSSION:
CALLED FOR BACKGROUND INFO. ON RHINEHART TIRE - HAS LITTLE INFO ON SITE PREVIOUS TO FIRE. SUGGESTED CONTACTING TOM MASSEY (ERT - ON SITE COORDINATOR) 597-9858

ACTION ITEMS:

AR100225

NUS 067 REVISED 0581

ORIGINAL
(Red)

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	3/26/84	

DISTRIBUTION:
TO FILE

BETWEEN:	OF:	PHONE:
MAC STERRETT	VA. WCB	(703) 828-2595

AND:
DAVE KINDIG (NUS)

DISCUSSION:

CALLED FOR BACKGROUND IN COMPLETING RHINEHART TIRE FIRE PA/SI/HRS.

- COUNTY BANNED DUMPING IN L.F., RHINEHART REC'D PERMISSION TO DUMP ON HIS LAND, BUT SOLICITED BUSINESS AS FAR AS 200 mi AWAY. TIRES SOLD TO SEAWARD INTERNAT'L FOR DOCKING BUMPERS. ALSO HAD PLANS TO RECOVER OIL W/INCINERATOR HE BUILT. INCINERATOR ON SITE BUT NOT TESTED. 1° CONTAINMENT W/ 50'ϕ POND DUG BY ERT (10' DEEP) (50K GAL), 2° CONTAINMENT LARGER (400K GAL) AND LINED, OILS PUMPED FROM 2°.
- 17 DOMESTIC WELLS SAMPLED, NO CONTAMINATION
  7 MONITORING WELLS AROUND FACILITY - ONLY XYLENE (16 µg/l) AND CAPROLACTAM (4100 µg/l) FOUND IN SHALLOW (3) WELLS. DEEP (4) WELLS CAPROLACTAM FOUND IN LOW CONC. (2.7 µg/l) IN 3 WELLS

ACTION ITEMS:
SAMPLED 1/31/84, ALL 7 SAMPLED 2/28/84 (RESULTS NOT IN YET)

- FIRE STILL SMOLDERING, ALMOST ALL TIRES DESTROYED, ~20% OF ORIGINAL VOLUME → RHINEHART HAS SCRAPED UP RESIDUE. WATER STORAGE POND HAS NO RELATIONSHIP TO DUMP SITE.

AR100226

NUS 067 REVISED 0581

ORIGINAL
(Red)

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	3/26/84	10:45 AM

DISTRIBUTION:
TO FILE

BETWEEN:	OF:	PHONE:
TOM MASSEY	EPA - ERT	(215) 597-9858

AND:
DAVE KINDIG (NUS)

DISCUSSION:

NEEDED BACKGROUND TO COMPLETE DESKTOP PA/HRS/SI
— FACILITY STARTED APPROX. TEN YRS AGO. OWNER (PAUL RHINEHART) RECEIVED MONEY FOR TAKING OLD TIRES. WANTED TO USE THEM FOR MAKING CARBON BLACK. FURNACE FOR BURNING TIRES ON SITE & OPERATIONAL, BUT NOT FUNCTIONING. PHOTOS IN POSSESSION OF ERT & VA. WCB. NO PERMITS OR PAST REGULATORY ACTION. CITED BY COUNTY & STATE, BUT NO ACTIONS TAKEN. TWO WOODEN GARAGES ON SITE BETWEEN RHINEHART HOME & SITE (ONE BURNED DOWN). APPROX 1000 PEOPLE IN 3 mi RADIUS. ERT NO LONGER ON SITE. FIRE STILL SMOLDERING.

CONTACT STEVE JARVELLA - 597-9325 (ERT)

ACTION ITEMS:

AR100227

NUS 067 REVISED 0881

ORIGINAL (Red)

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	3/29/84	9:15 AM

DISTRIBUTION:

TO FILE

BETWEEN:	OF:	PHONE:
Steve Jarvella	EPA ERT (Edison)	(215) 597-9325

AND:

Dave Kindig (NUS)

DISCUSSION:

- Approx. 800,000 gal. removed from site - fire still smoldering - no oil being produced - slope of discharge area ≈ 45° - injunction to stop dumping ~ 2wks before fire, issued by County result of complaints from neighbors - incinerator to carbon black & oil

OK 83

- Call John Riley - Fred. Cty Administrator about court actions 703-667-2365
- Harry Allen - ERT - Edison, NJ - Groundwater 201-

ACTION ITEMS:

AR100228

NUS 067 REVISED 0581

ORIGINAL (Red)

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	3/29/84	9:30 AM

DISTRIBUTION:

TO FILE

BETWEEN:	OF:	PHONE:
JOHN RILEY - COUNTY ADMINIST.	FREDERICK CTY.	(703) 667-2365

AND: DAVE KINDIG (NUS)

DISCUSSION:

— COMPLAINT FROM BILL PULLMAN (NEIGHBOR) ABOUT DUMPING / PILOT INCINERATOR. RHINEHART HAD SEVERAL TRUCKS FOR DELIVERING DISCARDED TIRES TO SITE. TRUCKS MAINTAINED ON SITE, BUT WERE USUALLY OUT ON ROAD. COUNTY FILED SUIT TO STOP HIM IN CIRCUIT COURT TO PREVENT HIM FROM DUMPING AFTER OCT 7 1983. TRIED TO CONTINUE OPERATION, BUT TRUCKS WERE TURNED AWAY. APPARENTLY, THERE WAS NO VIOLATION OF STATE LAW, & COUNTY WAS AWAITING RHINEHART'S RESPONSE TO INJUNCTION WHEN TIRES CAUGHT FIRE.

7 MILLION TIRES - EST. BY SURVEYOR (TOM SHOCKEY)

SITE APPROX 700' X 300' (5 ACRES)

RHINEHART WELL IS A SPRING

ACTION ITEMS:

AR100229

NUS 067 REVISED 0581

ORIGINAL
(Red)

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	3/29/84	2:00 PM

DISTRIBUTION:

TO FILE

BETWEEN:	OF:	PHONE:
TIM STONE - Hydrogeolog.	IT CORP. (EERU)	(201) 548-9660

AND:

DAVE KINDIG (NUS)

DISCUSSION:

STONE DID CONSTRUCTION & SAMPLING OF GROUNDWATER MONITORING WELLS (7) IN VICINITY OF FIRE. REPORT TO BE SUBMITTED TO EPA WITHIN 2 WKS (REQUESTED COPY).

- SOIL TYPES - FINE SAND, SILT & SOME CLAYS → BASICALLY WEATHERED SHALE & SANDSTONE - APPROX. 20-30' IN DEPTH
- PERMEABILITY - BOUWER & RICE TEST
  SHALLOW - 10^{-6} FT/SEC DEEP - 10^{-4}-10^{-5} FT/SEC
  SHALLOW WELLS - AQUIFER 140' FEET ~~DEEP~~ THICK, SATURATED ZONE ~ 10' BELOW SURFACE
  DEEP WELLS - 100-300' BELOW SURFACE ELEV.
- YIELDS - SHALLOW - < ½ GPM, DEEP - 0.1-15 GPM.

ACTION ITEMS:

AR100230

NUS 067 REVISED 0581

ORIGINAL (Red)

APP 6

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	4/6/84	11:30 AM

DISTRIBUTION:

TO FILE

BETWEEN:	OF:	PHONE:
JOHN RILEY - ADMINISTRATOR	FREDERICK CO.	(703) 667-2365

AND: DAVE KINDIG (NUS)

DISCUSSION:

- LOCAL FIRE MARSHALL HAS NOT DESIGNATED SITE TO BE FIRE OR EXPLOSION THREAT
- NO STATE PARKS IN AREA; AREA IS LARGELY RURAL, LITTLE/NO INDUSTRY
- SOME AGRICULTURAL LAND IN AREA (RHINEHART PROPERTY USED TO RAISE HORSES - MAY BE CLASSIFIED AGRICULTURAL

ACTION ITEMS:

AR100230A

NUS 067 REVISED 0581

ORIGINAL
(Red)

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
	4/18/84	11 AM

DISTRIBUTION:

TO FILE

BETWEEN:	OF:	PHONE:
TIM STONE	IT CORP.	(201) 548-9660

AND: DAVID R. KINDIG (NUS)

DISCUSSION:

Groundwater monitoring/testing has distinguished 2 levels of groundwater (shallow and deep).
- shallow flow is to NW, deep flow has not been defined
- groundwater in shallow aquifer shows a 100 ft gradient over ~1 mile to NW
- contamination is confined to shallow aquifer with a majority surfacing at the unnamed tributary to Hague Creek - no long range contamination problem, should have decreasing concentrations over the years
- unsat. zone - permeability (hyd. conductivity) = 10^{-6} ft/sec, and 10^{-4}-10^{-5} ft/sec in bedrock
- home wells are in deeper aquifer and are unaffected (200-300' deep)

ACTION ITEMS:

AR100231

ORIGINAL
(Red)

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
F3-8403-07	9-25-84	1553

DISTRIBUTION: File

p 1 of 2

RE: Confirmation of geology/hydro. information collected by IT consultant at Rhinehart Tire Fire.

BETWEEN:	OF:	PHONE:
Tim Stone - Hydrogeologist	IT Corp	(201) 548-9660

AND:

Martin R. Howe - Geologist / Hydrogeologist (NUS)

DISCUSSION:

- Underlying formation is the Chemung. Strike NE-SW, Dip 45° ESE, syncline plunges southerly in area of site. ≈1500 ft thick ≈2000 ft vertical thickness to underlying formation
- Bedrock was mostly fine grained, very hard, sandstone, some shale, some ~~the~~ weathered zones / ½" to 2" clay zones. Some fracture traces. Most of the formation was very massive.
- Thickness of the overburden ranged from 0-30' in and around the site and averaged about 20-30 feet. Generally, thickest near top of ridge and absent in valley (stripped off by stream). Massy Run ~~runs~~ is into bedrock.
- The overburden is gradational to bedrock with definite zones of competence.
- Flow believed to be mostly confined to the overburden in this area & ultimately discharges to Massy Run. Artesian conditions in the bedrock created by topographic relief off Hunting Ridge produce a vertical flow component believed to be strong enough to ~~impede~~ impede most flow infiltration. Infiltration from surface to bedrock would be greatest in areas of thin or ~~no~~ existing ~~bedrock~~ overburden. Shallow well

ACTION ITEMS:

pot in Massy Run showed some contamination. This was expected because it is believed that Rhinehart's pond has discharged to the run in the past. The only bedrock well to show contamination was a well ~~placed~~ installed directly downgradient of the fire pile.

- Since only 3 bedrock wells were installed, IT Corp. could not accurately determine regional flow direction for the area. It is suspected the regional flow would be in a ~~south~~ east direction ~~to~~ towards

AR100232

see page 2.

ORIGINAL
(Red)

NUS CORPORATION — **TELECON NOTE**

CONTROL NO:	DATE:	TIME:
F3-8403-07	9-~~24~~ 25-84	

DISTRIBUTION:

Rhinehart Tire Fire

P2of2

BETWEEN:	OF:	PHONE:
Tim Stone - Hydrogeologist	IT Corp.	(701) 548-9660

AND:

M. Howe (NUS)

DISCUSSION:

the structural nature of the geology in the site area. Principal flow is believed to along near vertical joint sets. Fracture traces measurments reveal a SE-NW alignment of the joints. These vertical joints allow artesian flow to force water in the overburden up thus impeding infiltration.

A leachate (oily) seep was found abt. 50 to 75 feet laterally of the pond area. Trenching revealed that flow was along a more competent zone within the overburden.

Mr. Stone believes that it is possible for wastes from the site to enter the bedrock aquifer however it would most likely travel toward and ultimately discharge to Wilson Run. Infiltration seems to depend on the thickness of the overburden and to what degree it has been reworked. It is not known to what extent Mr. Rhinehart reworked the soils in the site area prior to starting the dump.

ACTION ITEMS:

There are over a dozen home wells in the area. Drillers for IT Corp stated to Mr. Stone that Wells near the ridge top (Hunting Ridge) go to a depth of 300'. Yields in the bedrock are between .1 to 15gpm which seems to depend on the amount of fractures hit. Mr. Rhinehart draws water from a spring on his property. Analysis of this spring has yet to show contamination. Rhinehart's well is the closest to the site. Next closest is .45 miles or so away.

AR100233

NUS 067 REVISED 0581

ORIGINAL
(Red)

NUS CORPORATION — TELECON NOTE

CONTROL NO:	DATE:	TIME:
F3-8403-07	9/27/84	1356

DISTRIBUTION:

TO FILE

BETWEEN:	OF:	PHONE:
MARK DAVIS	FREDERICK COUNTY DISTRICT CONSERVATIONIST	(703) 662-3312

AND:

R GORRELL, FIT III (NUS)

DISCUSSION:

Call was made to inquire about Frederick County Soil Survey availability for the documentation of existing soils at the Rhinehart Tire Fire Site. Mr Davis explained that the area has been mapped out, the final edition of the Soil Survey is not available. I described the location of the site and, Mr. Davis referred to his copy of the map and provided the following:

Soils at the site are of the Wurtsboro Berks Channery Silt Loam 25-65% slopes

ACTION ITEMS:

AR100234

APPENDIX G

UNITED STATES GOVERNMENT

ORIGINAL
(Red)

memorandum

DATE: February 15, 1984

REPLY TO ATTN OF: Harry L. ATTen, Ph.D.
Environmental Response Branch

SUBJECT: Transmittal of the Preliminary Environmental Assessment Report for the Rhinehart Tire Fire

TO: Thomas Massey, Senior On-Scene Coordinator
Environmental Protection Agency, Region III

THRU: J. Stephen Dorrler, Chief
Environmental Response Branch

Enclosed is Environmental Response Team's Preliminary Environmental Assessment Report for Rhinehart Tire Fire, Winchester, Virginia.

Since I anticipate questions, complaints, and/or praise for this report, I have included most of the documentation with the names of the preparers as appendices. The principal ERT contacts are Rod Turpin for the air work and myself for the rest of the report. I have not included the ERT Field Data Sheets or the Analytical Reports from ETC, Inc. for the ERT water quality data summarized in Table 5.

If we can be of any additional assistance, please do not hesitate to call.

Enclosure

RECEIVED FEB 1984

OPTIONAL FORM NO.
(REV. 1-80)
GSA FPMR (41 CFR) 101-11.6
5010-114

☆U.S. GOVERNMENT PRINTING OFFICE : 1982 0 - 361-526 (7290)

AR100236

ORIGINAL
(Red)

PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT

RHINEHART TIRE FIRE
WINCHESTER, VIRGINIA

FEBRUARY 1984

ENVIRONMENTAL RESPONSE TEAM
WOODBRIDGE AVENUE, EDISON, NEW JERSEY

PRELIMINARY ENVIRONMENTAL ASSESSMENT OF THE RHINEHART TIRE FIRE

1.0 BACKGROUND

At about 1:00 A.M. on October 31, 1983, a fire of suspicious origin broke out in a 5-acre tire storage area on a steep hillside on the Rhinehart property near Winchester, Frederick County, Virginia. Fire fighters failed to control the blaze, which spread to engulf an estimated 5 to 7 million tires. Black smoke from the fire was visible over twenty miles away. Shortly after the fire started, hot oil produced from melting and pyrolysis of the tire mass, began to seep out of the toe of the tire pile and into an unnamed tributary to Hogue Creek. An unestimated quantity of oil flowed into Hogue Creek, which is a tributary to the Potomac River system. The nearest public water supply intake on this system is 22 miles downstream.

On October 31st, a catch basin was installed to trap the oil and to provide water for fighting the fire. High rates of oil and water seepage threatened to exceed the basin's storage capacity and the Environmental Protection Agency (EPA), Region III was activated. Shortly thereafter, Mr. Tom Massey, EPA On-Scene Coordinator, activated the Environmental Response Team (ERT).

1.1 PURPOSE

The ERT was requested to evaluate the immediate hazards to public health relating to air emissions from the fire and to the health and safety of response personnel. An air monitoring program was designed for this purpose. The ERT was also requested to conduct a joint study with the Virginia Water Control Board (WCB) to investigate surface water and groundwater contamination. The surface water study was dovetailed into an emergency monitoring program already being conducted by the WCB. The groundwater program, designed mainly to determine whether contamination is reaching the deeper aquifer, was deferred until the imminent hazard could be brought under control, and is now underway.

1.2 DESCRIPTION OF STUDY AREA

The Rhinehart site is located along Hunting Ridge; in the ridge and valley province of the Blue Ridge Mountains. The location has been mapped by the U.S. Geological Survey (see Figure 1, USGS Hayfield, VA quadrangle). The principal drainage of Hunting Ridge is Hogue Creek, which flows northeast along the strike of the Ridge and collects runoff from tributaries and groundwater outcrops from the wooded transverse valleys along its route. Drainage from the Rhinehart site enters one of these unnamed tributaries, which has been nicknamed "Massey Run" for temporary identification purposes. Hogue Creek has been designated a put-and take trout stream (Class V) by the Water Control Board. Very stringent water quality standards apply.

The site is underlain by a consolidated shale formation with some interbedded sandstone. Overburden consists of weathered bedrock. The strike of the formation is from SW-NE (along the strike of the Ridge). The formation dips to the east-southeast (ESE) at an angle of 35° - 50°. Hence, the bedding planes under the site dip into the Ridge at a downward angle such that one foot of run results in about one foot of drop-back under the tire pile. Groundwater flow in the weathered overburden is clearly toward Massey Run, as attested to by the oil-water seepage. Deeper flow probably follows the exposed bedding planes, particularly towards the southwest, although some flow may be occurring down-dip into the rock formation through fractures or loose joints. The groundwater study will address these concerns in more detail.

The air dispersion characteristics common to the eastern ridge and valley provinces apply to this site. The generally prevailing west to northwest winds carry the plume across the ridge tops and into the valleys beyond. Inversion conditions could lead to an excessive buildup of airborne materials in nearby valleys, which when added to the accumulated emissions from the woodstoves of the residents themselves could produce an air pollution condition. The issue is whether intermediate dispersion is adequate to eliminate this possibility for this particular site. The nearby downwind area is sparsely populated, except for the Rhinehart residence, which is less than 1000 feet from the fire perimeter.

2.0 DESCRIPTION OF SURVEY

2.1 AIR

Primary consideration was given to monitoring of vapors and aerosols in the air and smoke because of the dual needs of establishing respiratory protection levels for exposed workers on-site and establishing a possible evacuation perimeter for affected residents. For both these reasons, air monitoring programs were coordinated with the Centers for Disease Control (CDC) to determine the health risk.

In addition to the ERT air monitoring efforts, CDC requested NIOSH to do some additional air monitoring. The status of the NIOSH effort is unknown at this time.

An integrated air monitoring program was designated and implemented on 11/3/83 in accordance with ERT's protocol for uncontrolled hazardous waste sites. This guideline addresses five steps which provide a rapid and cost-effective characterization of air pollution from the site. The five include: 1) Determining Background Conditions; 2) Determining Concentrations On-site; 3) Determining Site (or Impact) Area Concentrations; 4) Identifying Specific Contaminants (if needed); and 5) Identifying Particulate Contaminants (if needed).

The sampling array is shown in Figure 2. Monitoring stations are described in Table 1. The program consisted of one background station, two off-site downwind stations, six on-site stations and off-site grab samples with the Real-Time Aerosol Monitor (RAM). The following is a breakdown of the type of samples:

1. NIOSH P&CAM-168 (Aromatic Amines) 3-stage silica gel tubes = 11 samples.
2. NIOSH P&CAM-127 (Organic Vapor Scan) 150 mg carbon tubes = 5 samples.
   600 mg carbon tubes = 15 samples
3. ERT 2-stage tubes (Organic Vapors) Tenax/Chromosorb 102 collection tubes = 23 samples
4. OVA/Thermal desorption collection tubes = 6 samples
5. Particulate cassettes for analyses of organic/inorganic contaminants = 14 samples

On November 22, 1983, and again on November 30, 1983, the clean-up contractor began programmed spraying of the fire with water from Rhinehart's pond to reduce the pond volume and to protect the integrity of the retaining dam. Quenching the fire in this manner was of great concern because of the possibility of forming noxious products by limiting combustion at the fire surface and releasing them in the steam generated. Another air monitoring program was begun to duplicate the earlier schemes under the spraying conditions and to provide rapid field data for control of the spraying operation in case high levels of particulates or volatile materials indicated any imminent hazard.

See Appendix A for the ERT Air Monitoring Report.

2.2 SURFACE WATER

The major concerns of the surface water studies included the immediate impacts of the spill on the water resource and on the water supplies downstream and the long term impact of residual seepage on the water supply and on the environment.

The State WCB began to monitor the water quality of Massey Run and Hogue Creek on November 3rd, and has continued monitoring on a weekly to bi-weekly schedule since that time. The WCB sampling locations are shown in Figure 3. The results of the State studies from November 3 to December 16, 1983 arrived in the ERT office on January 19, 1984. The WCB data reports are included as Appendix B. The results of the December 19th survey were obtained by phone a few days later. The WCB samples usually were analyzed for priority pollutant volatiles and several were analyzed for acid compounds, base neutrals, and caprolactam (nylon monomer). Flow data for the sampling days (mean daily discharge) were collected from the State gaging station located on Hogue Creek at Route 614, downstream of the fire site. The flow data and selected water quality data are summarized in Table 2.

The ERT participated with the State in conducting a water quality survey on November 18, 1983. See Figure 4 for sampling locations.

The surface water study consisted of sampling water and sediment from the affected waterways between the lower containment pond and the gaging station at Route 614. The Microtox® unit was employed as a rapid and sensitive indicator of toxicity associated with the tire fire leachate because the major constituents, aromatics and phenolics, give excellent Microtox responses. However, the Microtox measures toxicity to bioluminescent marine bacteria, which would seem to be of small value in estimating the environmental impact on the Hogue Creek ecosystem. Therefore, selected samples were analyzed chemically to determine whether the Microtox results correlated with the known toxicity of chemical compounds present to human health and indigenous aguatic life. Real time measurements of pH and temperature were made to determine whether large quantities of benzoic acid and/or heat from the leachate could be influencing stream toxicity. ERT chemical samples were also analyzed for total organic carbon (TOC) as a relative indicator of total contamination.

Upstream control samples for complete analysis were taken on the presumably uncontaminated western tributary to the lower containment pond, and on Hogue Creek about 1000 feet upstream of the confluence with Massey Run. Stream flow was estimated at the Hogue Creek control station using a portable velocity meter and a tape measure. Massey Run could not be gaged accurately because it was too shallow and had poor channel characteristics. Its flow was determined by the difference in flow on Hogue Creek above and below the confluence.

Samples for complete analysis were also taken at the mid-point in Massey Run and in Hogue Creek about 1500 feet downstream of the confluence. Streamflow was also estimated at the latter station. Duplicate samples were taken by the WCB for purgeable organic analysis at both of these stations.

Microtox-only samples were taken in the lower containment pond and at three intermediate points along Massey Run (two above and one below WCB Station 01) and at two points downstream on Hogue Creek (near the point where a small fish kill had occurred earlier and at the gaging station).

The following table summarizes the water analyses performed by the EPA (ERT) and the State (WCB) for the samples taken on 11/18/83:

Station # (ERT/WCB)	Purgeable Organics	Acid Compounds	Base/ Neutrals	TOC/Phenols/ Cyanide	Microtox
H01/03A	ERT	ERT	ERT	ERT	ERT
H02/02	ERT/WCB	ERT	ERT	ERT	ERT
H03	-	-	-	-	ERT
H04/02A	WCB	-	-	-	ERT

ORIGINAL (Red)

Station # (ERT/WCB)	Purgeable Organics	Acid Compounds	Base/ Neutrals	TOC/Phenols/ Cyanide	Microtox
T05	ERT	ERT	ERT	ERT	ERT
T06	-	-	-	-	ERT
T04	-	-	-	-	ERT
T03/01	ERT/WCB	ERT	ERT	ERT	ERT
T02	-	-	-	-	ERT
T01	-	-	-	-	ERT

The State water quality data for these samples are included in Appendix B (report dated December 5, 1983). The ERT chemistry data is summarized in Table 3 (5 pages). The ERT Microtox Data is summarized in Table 4. The full Microtox Report is included as Appendix C.

2.3 GROUNDWATER

The geology of the site suggests subsurface contamination is a possibility. Preliminary investigations have revealed there is considerable artesian pressure in the lower aquifer which may not permit infiltration by the oily leachate. However, the probability of fracture flow or flow along the bedding planes cannot be ruled out without further study. As of this date, the well drilling program is nearing completion as planned, except that unforeseen problems due to weather and equipment failure have interfered with the schedule. Once the wells are in place, the ERT and the WCB will conduct the necessary well testing, sampling, and analysis. The groundwater report will be included as an addendum to this Preliminary Environmental Assessment.

The Groundwater Study Plan is included as Appendix D.

3.0 DATA INTERPRETATION

This chapter addresses the significance of the analytical findings in the areas of emissions, transport, and environmental concentrations. Where statements are made regarding health impacts, they should be considered very preliminary subject to a review to be made by the Centers for Disease Control (CDC).

3.1 AIR

Field monitoring of airborne organic vapors and particulates resulting from the tire fire revealed significantly elevated levels in the nearby environment. Concentrations were sufficient to be considered hazardous in the smoke plume given prolonged exposure and sufficient to cause concern

for potential exposure to gusts of smoke and exposure to plume settlement downwind. Subsequent chemical analysis confirmed the field monitoring results and supported the recommendation of an air pollution alert by ERT and the CDC on November 4, 1983. Subsequent to this recommendation, VA Department of Health released a public health advisory regarding potential plume exposure.

The duration and magnitude of the exposure hazard are principally related to the source strength and its changes with time and the air dispersion and dilution characteristics and their changes with time. As the fire loses its power, the source strength diminishes. Periodic flare-ups produce only a fraction of the original emission rate on a daily basis. If dispersion does not also decrease proportionately, exposure potential decreases dramatically. Restructuring of the exposure scenario mandates reconsideration of acceptable emission concentrations.

The initial approach used by the ERT is to estimate safe air concentrations using a method developed by Monsanto Corporation and modified slightly by EPA. We term the method, "Public Safety Factor" or PSF. The method consists of taking the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV's) for the workplace and adjusting them for a 24-hour, seven-day per week exposure period. To allow for the increased sensitivity of the general public as opposed to workers, for possible synergistic effects and for eliminated recovery (or purge) time, a safety factor of 1/100 is also applied. A small buffer is included to provide an early warning function. In short, acceptable air levels for longterm exposure may be estimated by dividing the ACGIH Time-Weighted Average criteria by 440.

This method is especially valid for gaseous emissions and respirable particulates. For larger particulates and certain skin active substances more latitude is warranted and extremely low permissible concentrations must be viewed cautiously. The particulate data calculated from the RAM studies is a case in point. The TLV for benzene soluble coal tar pitch volatiles or particulate polynuclear aromatic hydrocarbons (read "smoke") is 0.2 mg/m^3. Applying the PSF method, yields an acceptable concentration of about 0.0004 mg/m^3. However, the background levels observed at the control station ranged from 0.01 to 0.06 mg/m^3. In such cases, it is more reliable to consider an incremental increase above background as an action level. In this case, we used a sustained particulate level of 0.1 mg/m^3 as cause for concern.

Except for direct exposure in the plume (Station No. 1), dispersion was generally sufficient to cause at least a tenfold dilution at the nearest downwind station (No. 5) even though the smoke was visibly present. Since the volatile organics of greatest concern, chloroform and benzene, were present at Station No. 1 at maximum concentrations of about 20 and 30 times their respective PSF limits, it is readily apparent that they would quickly diminish to acceptable levels a short distance downwind. Hence, it may be concluded that no widespread environmental problem can exist.

The localized problem is another matter. The volatile organics and soot as measured at the perimeter of the fire (Station No. 1), present levels which range from marginally hazardous to very hazardous in reference to accepted

TLV's. Working in the fire area itself (within the perimeter where there is less dilution) provides exposure opportunities well in excess of acceptable limits. Extreme health and safety measures are required to limit exposure in this area.

3.2 SURFACE WATER

Toxic substances in toxic amounts have migrated from the tire fire site into the Hogue Creek system. Water quality data of the State and EPA indicate emissions have been occurring since the fire began and will continue for an undetermined time into the future. Aside from the first slug of oil which escaped into the system, seepage and leachate into Massey Run and Hogue Creek persisted as of the last sampling date for which the ERT has reported data (i.e., December 19, 1983). The evidence indicates that toxic substances are being carried from the site in shallow groundwater which outcrops into Massey Run and into Hogue Creek via Massey Run and along the alluvial aquifer associated with it.

The available data indicate that ever since the surface flow of oil has been placed under control, pollutant loadings to Hogue Creek have been related to total stream flow, which is reflective of a system where contaminants are dissolved in shallow groundwater closely associated with an outcropping stream system, such as Massey Run. However, the toxic effects of the leachate appear to be confined to Massey Run under the current situation. Although toxic substances are reaching Hogue Creek, they do not appear to warrant extraordinary concern over environmental effects.

The first set of data received were the Microtox results from water and sediments sampled on November 18th. The data for those water samples, which yielded any significant toxicity, are shown graphically in Figures 5 and 6. The minimum dilution of the water samples was 45%, which means a significant toxic response must occur at about a 1:1 dilution before it may be detected by the unit. Moreover, samples which do not yield a toxic response in the test at the highest concentration (minimum dilution) might actually still have a toxic effect at full strength. However, no toxicity would be detected. This is but one of the reasons correlative chemical data is valuable in interpreting the results.

As shown in the figures, toxicity was evidenced in the lower containment pond and in Massey Run as far downstream as Hogue Creek. Below the confluence, toxicity of Hogue Creek water was reduced to non-detectable levels, although significant toxicity was still evidenced in the sediments immediately downstream. Samples from stations further downstream yielded no significant toxicities in either water or sediments.

Table 5 shows a summary of Microtox toxicity testing and selected chemical data for each water station sampled on November 18th. The Microtox results are expressed as percent waste eliciting EC_{50} and EC_{20} responses. An EC_{50} is an "effect concentration" of sample resulting in a 50% light reduction and an

EC_{20} is an "effect concentration" resulting in a 20% light reduction. These numbers are determined by interpolation, where possible, or extrapolation, where necessary, from the curves shown in Figure 5 and 6, using standard bioassay methods.

The summary (Table 5) includes chemical data for the significant contaminants likely to produce an acutely toxic effect on the Microtox organisms. These chemicals include phenol and total phenolics, caprolactam, cyanide (CN), and total organic carbon (TOC). Analysis of this table yields no striking results. While we can state in general that significant Microtox toxicities are associated with high concentrations of phenolics and caprolactam, the data cannot be used to prove cause and effect. If either of these chemical indicators were itself the causative agent, we would have observed more toxicity in the Hogue Creek samples (01830 and 01831) than in the tributary to the lower containment pond (01838). A scan of the raw data also shows no qualitative difference between samples 01838 and 01831. More than likely, the toxic effect is exerted synergistically, with contributory agents which were not quantified.

Evaluation of the chemical data taken by the State and EPA shows considerable time variability over the first month and a half since the fire began (See Table 2). However, a relationship to streamflow is also suggested. One possible relationship may be postulated by making a logical assumption that caprolactam loading on Hogue Creek is related to gaged stream flow. Since only a few real data points are available, no conclusions may be drawn, but the concept is useful for predicting future conditions. If the relationship continues to hold with additional sampling, we could make an estimate of the loading on Hogue Creek for the duration of the incident using State flow records. Using the data in Table 2 for November 29th and December 6th and 19th, a standard curve may be prepared for log-linear regression caprolactam loading (lbs/day) vs. gaged flow (cfs). Using the flow data for other sampling dates, we can calculate estimated loadings for each. The standard curve is shown in Figure 7. Using estimated loadings and measured flows, one may then estimate the caprolactam concentrations at the gaging station. Admittedly, the level of confidence is very low, but a rough indication is still useful.

3.3 GROUNDWATER

Preliminary Microtox data on the groundwater study program indicate that the deep aquifer has not been contaminated downgradient from the fire site. However, Microtox toxicity was evident in the water table aquifer downgradient.

On January 31, 1984, the two completed downgradient wells - TF2D and TF2S, and the partially completed upgradient well - TD1D, were sampled by ERT. ERT samples were to be analyzed for purgeable organics and Microtox toxicity. ERT also collected samples for the State WCB, which is to provide a more complete chemical analysis.

The Microtox data for the ERT samples was reported verbally on February 6, 1984. The deep well TF2D and the half-drilled well TF1D (depth at the time was 54 feet) yielded no detectable toxicity. The downgradient shallow well (TF2S) yielded the results which follow:

Dilution	Normalized Percent Light Decrease
5.65%	8.4%
11.3%	21.8%
22.5%	41.0%
45.0%	38.0%

The resulting curve is plotted in Figure 8. Interpolation yields an EC_{20} of 10.3%, which corresponds to the results of the marginally contaminated sample from the westerly tributary to the lower containment pond. Compare the 12.0% light reduction for sample 01838.

Further discussion must wait until the chemical data is received from the State and EPA.

4.0 CONCLUSIONS AND RECOMMENDATIONS

This chapter draws together the findings to date in the air, water, and groundwater studies to reach general conclusions as to the environmental impact of the present and projected situation at the Rhinehart site. It is not intended to assess environmental damage that may have occurred during the course of the incident.

4.1 CONCLUSIONS

While emission of organic vapors from the fire did reach concentrations significant enough to require the use of personnel protection equipment, they did not reach concentrations which were considered hazardous beyond a short distance downwind of the source. Plume dispersion was adequate to ensure an effective exposure would not occur beyond the Rhinehart property.

Particulate emissions from the fire were severe, achieving levels of at least 40 mg/m^3 in the smoke at breathing height along the perimeter of the fire. This concentration is 200 times the recommended TLV for "smoke" and 400 times the level of concern established by CDC and ERT for particulates. Although good plume dispersion characteristics generally prevailed during the height of the incident, the decisions to provide smoke exposure warnings on and off-site were well justified.

The diminishing source strength of the fire is reducing the perimeter of the area of concern over human health from airborne contaminants but the exposure risk remains in the immediate vicinity of the fire.

Emissions of oil and water mixtures have contaminated the water and sediments of Massey Run. The toxicity effect, as measured by the Microtox, extends at least to the confluence with Hogue Creek. The chemical evidence does not conclusively link the Microtox results with a particular chemical substance. Rather, a combined effect of the materials present is indicated.

Residual contamination persists in Massey Run. It appears that the shallow groundwater table, the sediments, and the stream itself are interrelated and are serving as a reservoir and transport mechanism for contaminants which once flowed from or are leaching from the fire area. The total quantity of material present and its leaching rate cannot be determined at this time, hence the duration of the effect cannot be estimated.

There appears to be a relationship between organic loading (as measured by caprolactam loading) and streamflow in Hogue Creek. This relationship could indicate higher pollutant loading will occur at high streamflows. Spring flows could result in toxicity being manifested in Hogue Creek below the confluence.

The shallow groundwater downgradient from the fire site is contaminated to the extent that a Microtox response is elicited. However, the toxicity would be classified as moderate. Based on limited data, the deeper aquifer appears to be clean. Preliminary flow studies indicate that the shallow aquifer flows towards Massey Run via the Rhinehart Pond drainage system or by subsurface transport. The deep aquifer seems to flow in the same direction and may outcrop closer to Hogue Creek. Conclusions regarding the environmental impact on groundwater must be deferred until the groundwater studies are completed.

Overall, the environmental impact of the tire fire does not appear to be severe at this time. Long term impacts from air releases appear to be negligible. The immediate surface water impact from large releases of oil has passed and the potential for instantaneous large releases has diminished with reduced oil production in the fire. Outcropping of leachate into Massey Run and Hogue Creek is likely to occur for an undetermined time, but it appears that any major toxic effects will be confined to the Run and will not be widespread in Hogue Creek. Quantities of contaminants of non-detectable levels may reach the downstream water supply intakes until acclimated stream bacteria become more active in the warmer weather and biodegradation is enhanced. The groundwater contamination issue remains open at this time.

4.2 RECOMMENDATIONS

Given the current site characteristics, there is no need for additional air monitoring. Should major changes occur in source strength or distribution, another air monitoring program may be needed.

Should mitigative action be taken at the site, an air monitoring program should be established as part of it.

Personnel safety requirements applied during the incident should continue to apply adjacent to the fire area.

Water quality monitoring should be continued on a bi-weekly to monthly basis at the WCB monitoring stations to establish a trend in contaminant loadings. We recommend that the State continue to monitor for caprolactam as well as for purgeable organics since caprolactam appears to be a useful indicator of loading rate.

Streamflow records appear to be an intergral part of determining the magnitude and duration of the environmental impact of the leachate. Hence, obtaining flow records for Hogue Creek and opportunistic flow measurements on both streams should be considered part of the surface water monitoring program.

We recommend the groundwater studies be carried to their conclusion and that the resulting report be appended to this environmental assessment by reference.

Attachments

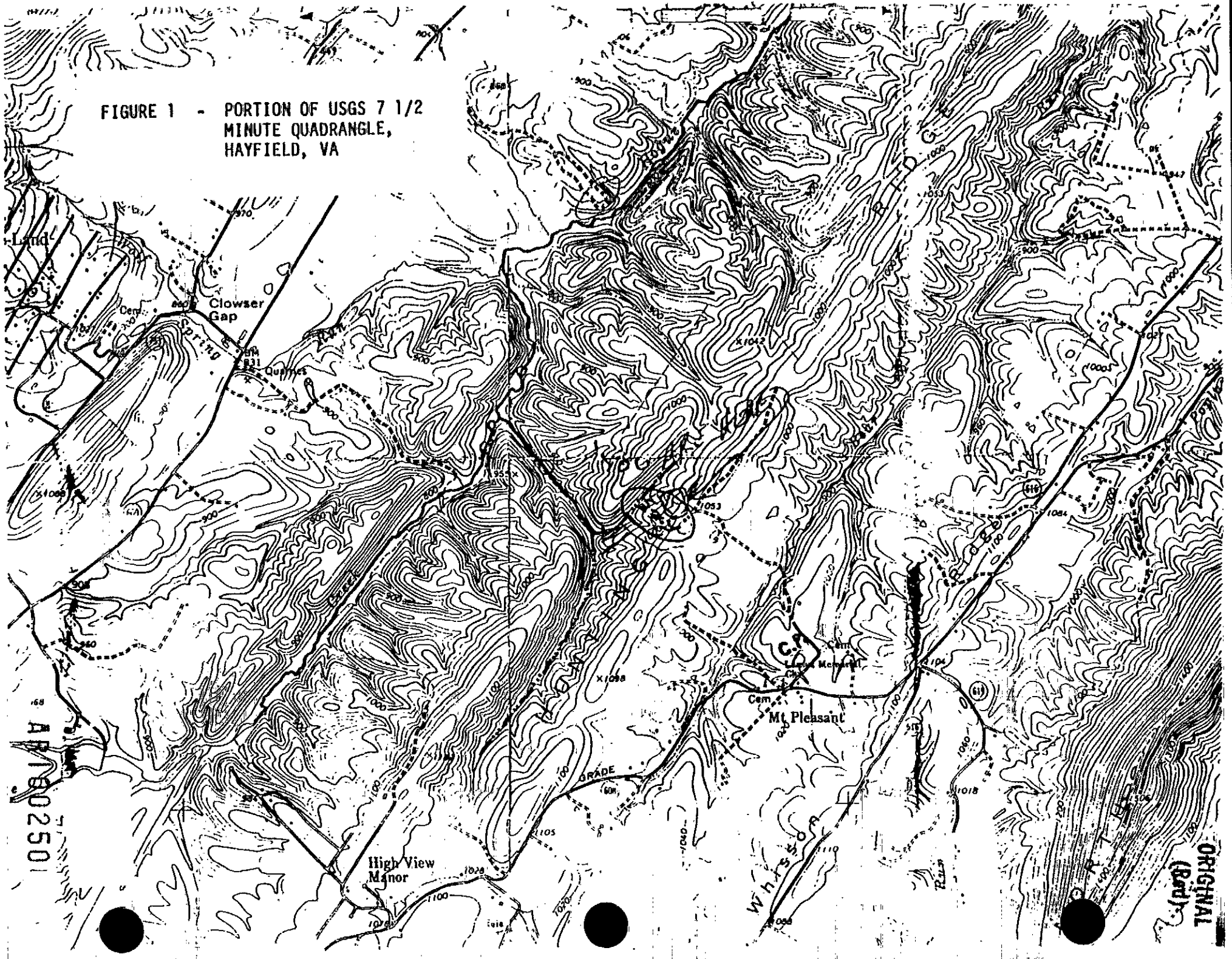
ORIGINAL
(Red)

LIST OF FIGURES

LIST OF TABLES

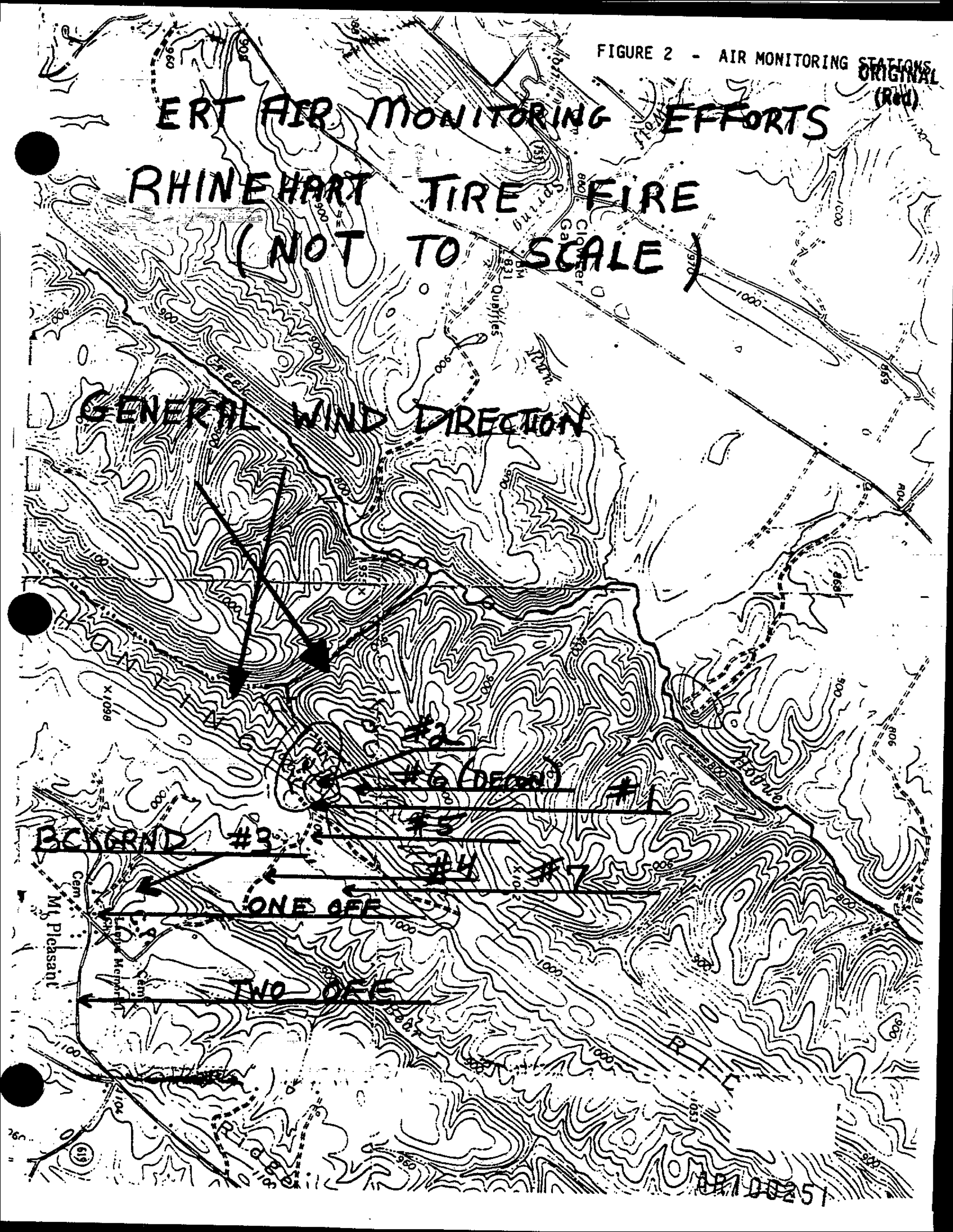
LIST OF APPENDICES

FIGURE 1 - PORTION OF USGS 7 1/2 MINUTE QUADRANGLE, HAYFIELD, VA



AMD 02501

FIGURE 2 - AIR MONITORING STATIONS



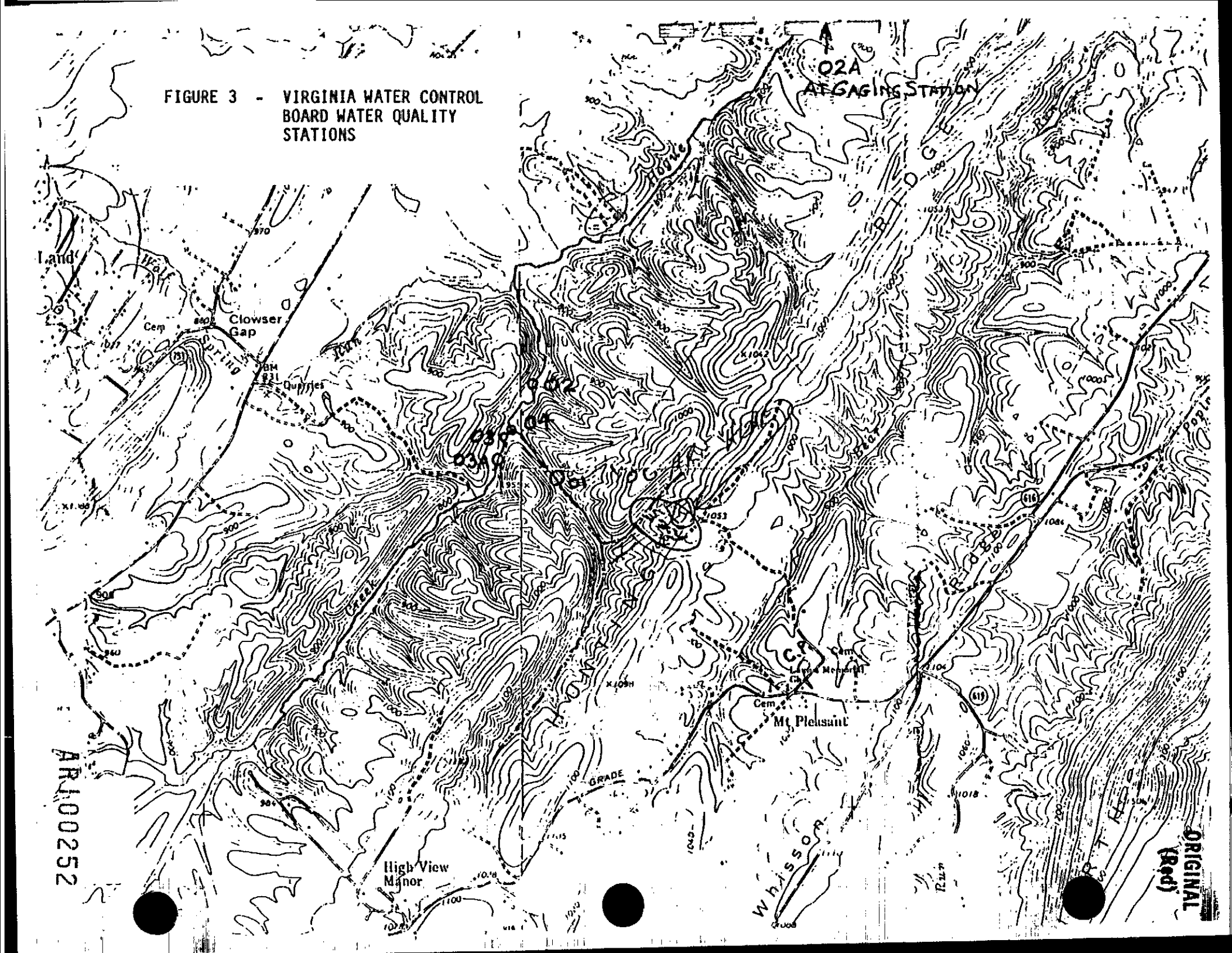
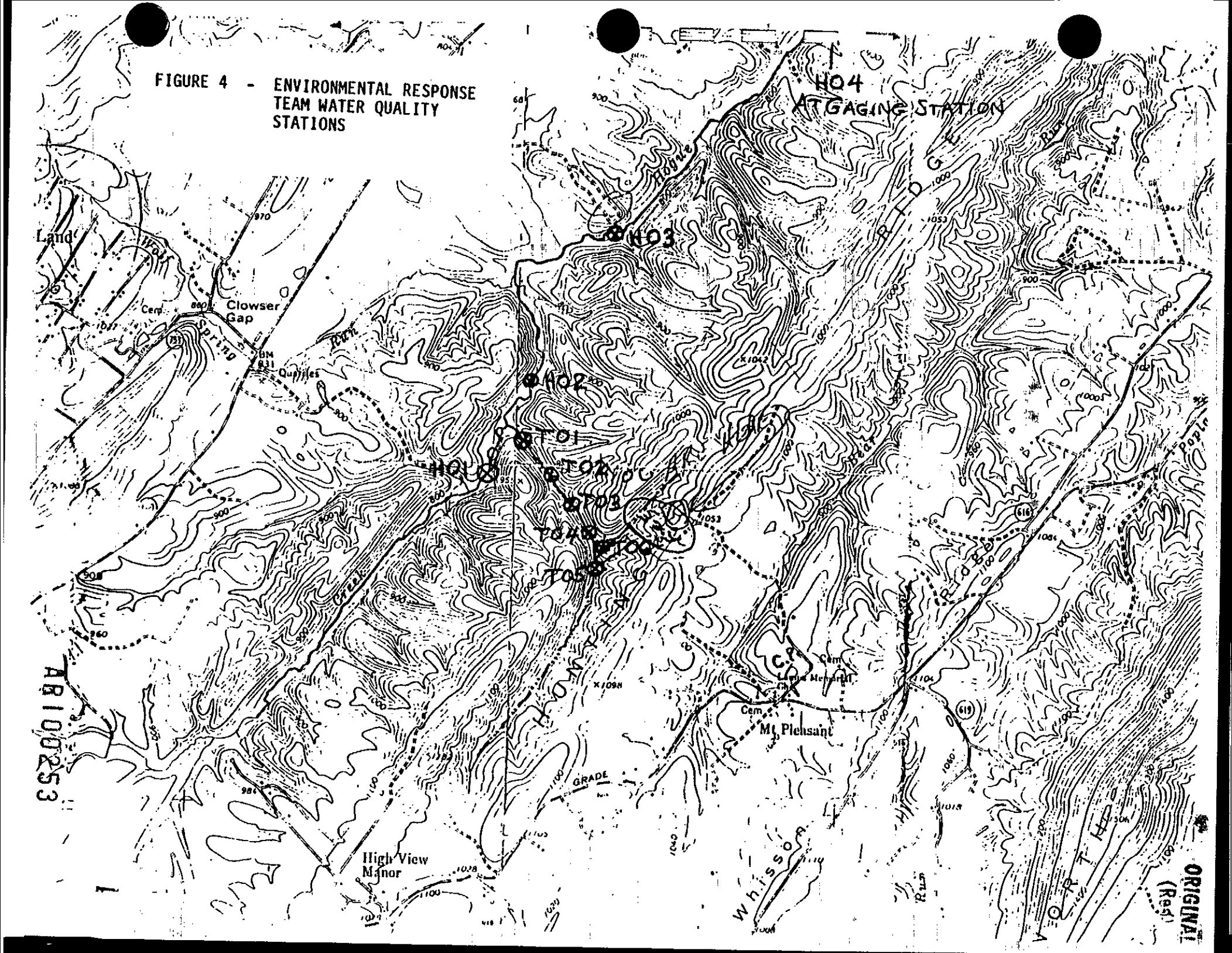


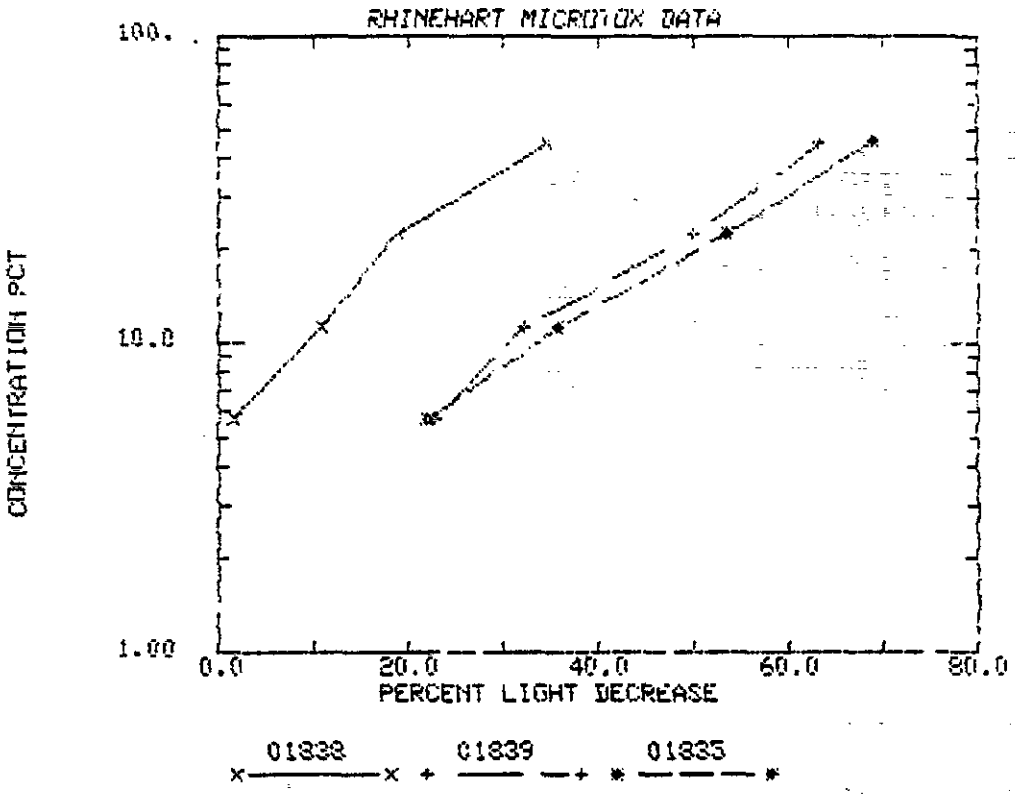
FIGURE 3 - VIRGINIA WATER CONTROL BOARD WATER QUALITY STATIONS
02A AT GAGING STATION
Clowser Gap
Cem
Spring
Quarries
Creek
Mt Pleasant
Cem
GRADE
High View Manor
Whissor
ORIGINAL (Red)
AR100252

FIGURE 4 - ENVIRONMENTAL RESPONSE TEAM WATER QUALITY STATIONS



ORIGINAL

FIGURE 5 - MICROTOX® RESULTS FOR MASSEY RUN - UPSTREAM



AR 100253A

ORIGINAL (Red)

FIGURE 6 - MICROTOX® RESULTS FOR MASSEY RUN - DOWNSTREAM

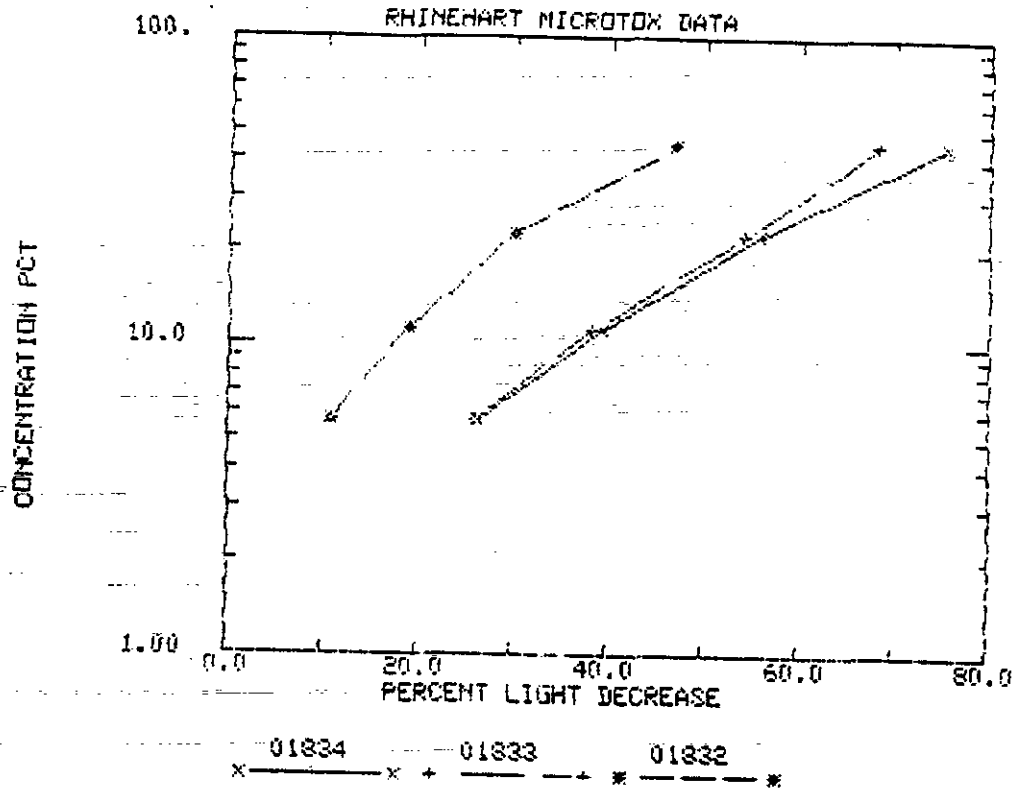
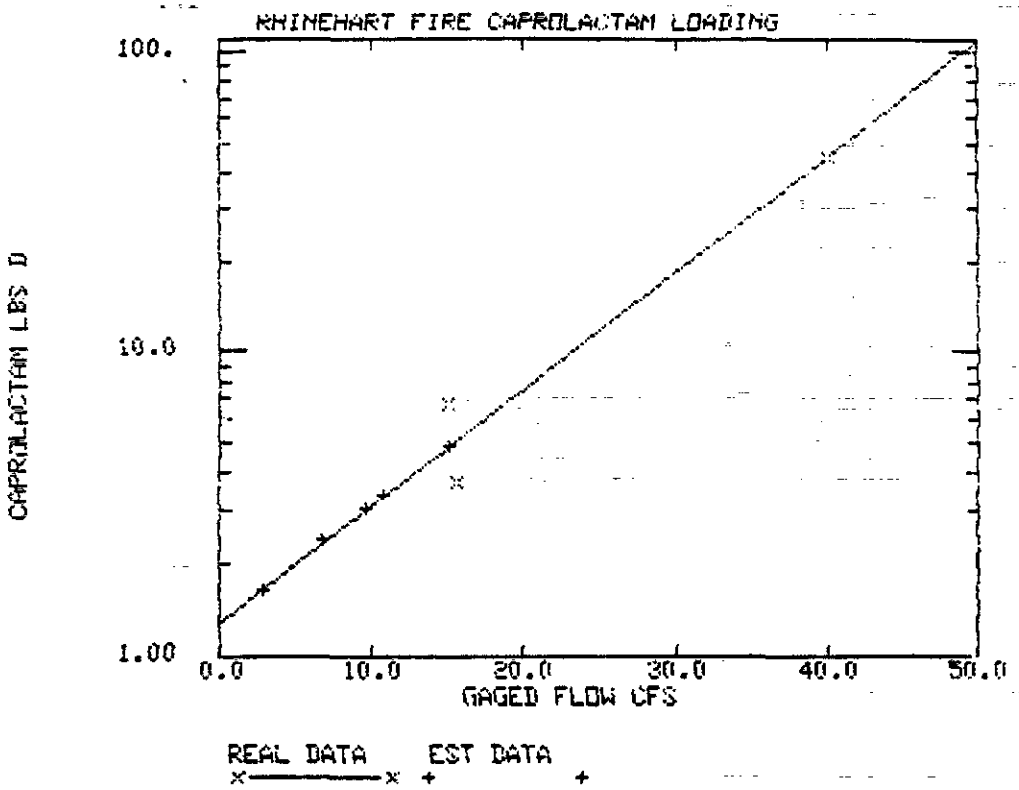
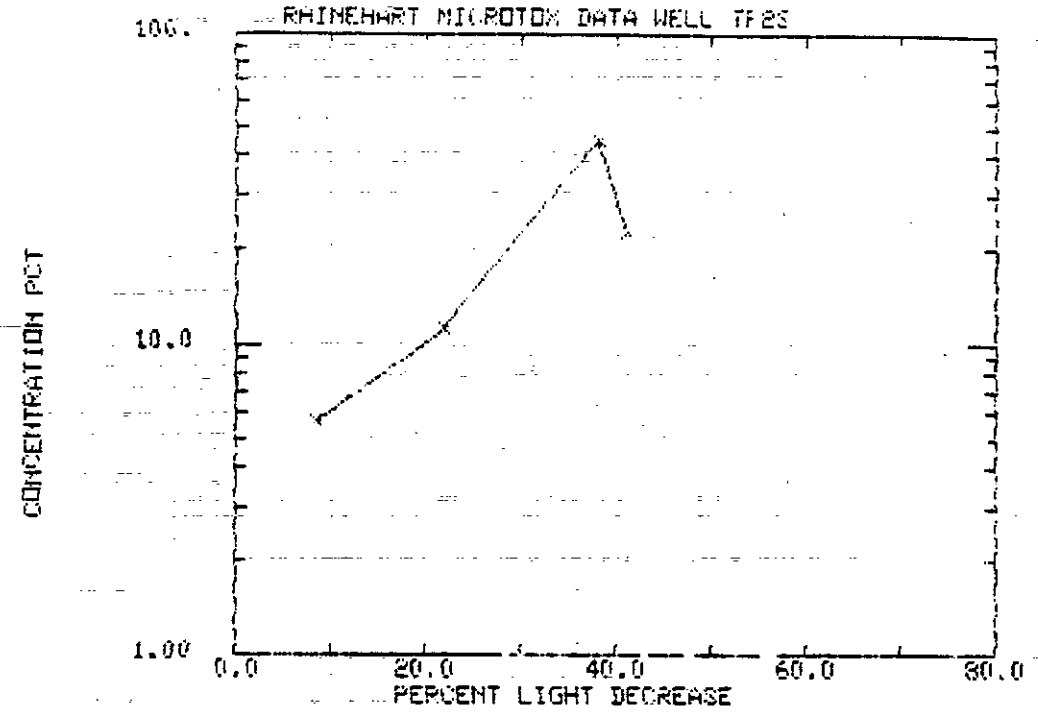


FIGURE 7 - CAPROLACTAM LOADING AT GAGING STATION



ORIGINAL
(Red)

FIGURE 8 - MICROTOX® RESULTS FOR WELL TF2S



RHINEHART TIRE FIRE - TABLE 3
ERT WATER QUALITY DATA SUMMARY - NOVEMBER 1983

SAMPLE TYPE	WATER						SEDIMENT			
ERT SAMPLE NUMBER	01838	NA	01833	01830	01831	Blank	01838	01833	01830	01831
DESCRIPTION	Trib to Lower Pond	Rhine-hart's Pond	Mid-Massey's Run	Hogue Creek Upstream	Hogue Cr Down-stream	Bottled Water	Trib to Lower Pond	Mid-Massey's Run	Hogue Creek Upstream	Hogue Cr Down-stream
VOLATILE COMPOUNDS/ UNITS	ug/L						ug/Kg			
Acrolein										
Acrylonitrile										
Benzene		757.	<10							
bis (Chloromethyl) ether										
Bromoform										
Carbon tetrachloride										
Chlorobenzene										
Chlorodibromomethane										
Chloroethane										
2-Chloroethylvinyl ether										
Chloroform										
Dichlorobromomethane										
Dichlorodifluoromethane										
1,1-Dichloroethane										
1,2-Dichloroethane										
1,1-Dichloroethylene										
1,2-Dichloropropane										
1,3-Dichloropropylene										
Ethylbenzene		296.	17.							
Methyl bromide										
Methyl chloride										
Methylene chloride	<10	<100		<10	<10	<10		188.	126.	71.
1,1,2,2-Tetrachloroethane					<10					
Tetrachloroethylene										
Toluene		621.	<10							
1,2-Trans-dichloroethylene										
1,1,1-Trichloroethane			<10					<10	<50	
1,1,2-Trichloroethane										
Trichloroethylene										
Trichlorofluoromethane										
Vinyl chloride										
1,2,3-Trichloropropane										
Caprolactam	81.	294000.	8800.		127.			3320.		

RHINEHART TIRE FIRE - TABLE 3
ERT WATER QUALITY DATA SUMMARY - NOVEMBER 1983 (Cont.)

SAMPLE TYPE	WATER						SEDIMENT			
ERT SAMPLE NUMBER	01838	NA	01833	01830	01831	Blank	01838	01833	01830	01831
DESCRIPTION	Trib to Lower Pond	Rhine-hart's Pond	Mid-Massey's Run	Hogue Creek Upstream	Hogue Cr Down-stream	Bottled Water	Trib to Lower Pond	Mid-Massey's Run	Hogue Creek Upstream	Hogue Cr Down-stream
ACID COMPOUNDS/ UNITS	ug/L						ug/Kg			
2-Chlorophenol										
2,4-Dichlorophenol										
2,4-Dimethylphenol		<12500								
4,6-Dinitro-o-cresol										
2,4-Dinitrophenol										
2-Nitrophenol			<25							
4-Nitrophenol										
p-Chloro-m-cresol										
Pentachlorophenol										
Phenol	<25	<12500	1150.			<25		<833		
2,4,6-Trichlorophenol										
Total Phenolics	<50	14000.	1800.	51.	<50	<50		<100	<100	<100

RHINEHART TIRE FIRE - TABLE 3
ERT WATER QUALITY DATA SUMMARY - NOVEMBER 1983 (Cont.)

SAMPLE TYPE	WATER						SEDIMENT			
ERT SAMPLE NUMBER	01838	NA	01833	01830	01831	Blank	01838	01833	01830	01831
DESCRIPTION	Trib to Lower Pond	Rhine-hart's Pond	Mid-Massey's Run	Hogue Creek Upstream	Hogue Cr Down-stream	Bottled Water	Trib to Lower Pond	Mid-Massey's Run	Hogue Creek Upstream	Hogue Cr Down-stream
BASE NEUTRAL CMPDS/ UNITS	ug/L						ug/Kg			
Acenaphthene		<100						<330		
Acenaphthylene										
Anthracene										
Benzidine										
Benzo(a)anthracene										
Benzo(a)pyrene										
Benzo(b)flourenthene										
Benzo(ghi)perylene										
Benzo(k)flouranthene										
bis(2-Chloroethoxy)methane										
bis(2-Chloroethyl) ether										
bis(2-Chloroisopropyl)ether										
bis(2-Ethylhexyl)phthalate		<100							<330	<330
4-Bromophenyl phenyl ether										
Butyl benzyl phthalate								<330	<330	<330
2-Chloronaphthalene										
4-Chlorophenyl phenyl ether										
Chrysene										
Dibenzo(a,h)anthracene										
1,2-Dichlorobenzene										
1,3-Dichlorobenzene										
1,4-Dichlorobenzene										
3,3'-Dichlorobenzidine										
Diethyl phthalate									<330	<330
Dimethyl phthalate										
Di-n-butyl phthalate								<330	<330	<330
2,4-Dinitrotoluene										
2,6-Dinitrotoluene										
Di-n-octyl phthalate		<100								
1,2-Diphenylhydrazine										
Fluoranthene		<100								

RHINEHART TIRE FIRE - TABLE 3
ERT WATER QUALITY DATA SUMMARY - NOVEMBER 1983 (Cont.)

SAMPLE TYPE	WATER						SEDIMENT			
ERT SAMPLE NUMBER	01838	NA	01833	01830	01831	Blank	01838	01833	01830	01831
DESCRIPTION	Trib to Lower Pond	Rhine-hart's Pond	Mid-Massey's Run	Hogue Creek Upstream	Hogue Cr Down-stream	Bottled Water	Trib to Lower Pond	Mid-Massey's Run	Hogue Creek Upstream	Hogue Cr Down-stream
BASE NEUTRAL CMPDS/ UNITS	ug/L						ug/Kg			
Fluorene								<330		
Hexachlorobutadiene										
Hexachlorocyclopentadiene										
Hexachloroethane										
Indeno(1,2,3-c,d)pyrene										
Isophorone		<100								
Naphthalene		328.								
Nitrobenzene										
N-Nitrosodimethylamine										
N-Nitrosodi-N-propylamine										
N-Nitrosodiphenylamine		239.						<330		
Phenanthrene	<10	203.						631.		
Pyrene		108.						<330		
1,2,4-Trichlorobenzene										
2,3,7,8-TCDD										

RHINEHART TIRE FIRE - TABLE 3
ERT WATER QUALITY DATA SUMMARY - NOVEMBER 1983 (Concl.)

SAMPLE TYPE	WATER						SEDIMENT			
ERT SAMPLE NUMBER	01838	NA	01833	01830	01831	Blank	01838	01833	01830	01831
DESCRIPTION	Trib to Lower Pond	Rhine-hart's Pond	Mid-Massey's Run	Hogue Creek Upstream	Hogue Cr Down-stream	Bottled Water	Trib to Lower Pond	Mid-Massey's Run	Hogue Creek Upstream	Hogue Cr Down-stream
METALS, CYANIDE, etc./UNITS	ug/L						mg/Kg			
Antimony		<70								
Arsenic		5.							26,	
Beryllium									1.6	
Cadmium		13.							0.7	
Chromium		<9							28.	
Copper		11.							24.	
Lead		<60							31.	
Mercury									<0.1	
Nickel		90.							46.	
Selenium									3.	
Silver		<9							<0.6	
Thallium										
Zinc		94000.							110.	
Cyanide, Total	31.	2400.	214.	26.	28.			<0.5	<0.5	<0.5
Oil & Grease								1100.	1200.	1600.
Total Organic Carbon	3150.		197000.	3000.	7300.					

ORIGINAL (Red)

FILE: _DX080/GRAPHICS/RHMI..4

TABLE 4 - MICROTOX® DATA FOR MASSEY RUN

```
RHINEHART MICROTOX DATA 01838
2       .1700e+01       .5650e+01
2       .1070e+02       .1130e+02
2       .1900e+02       .2250e+02
2       .3450e+02       .4500e+02
9
RHINEHART MICROTOX DATA 01839
2       .2260e+02       .5650e+01
2       .3210e+02       .1130e+02
2       .5000e+02       .2250e+02
2       .5320e+02       .4500e+02
9
RHINEHART MICROTOX DATA 01835
2       .2200e+02       .5650e+01
2       .3560e+02       .1130e+02
2       .5360e+02       .2250e+02
2       .6900e+02       .4550e+02
9
RHINEHART MICROTOX DATA 01834
2       .2630e+02       .5650e+01
2       .3930e+02       .1130e+02
2       .5580e+02       .2250e+02
2       .7550e+02       .4500e+02
9
RHINEHART MICROTOX DATA 01833
2       .2600e+02       .5650e+01
2       .3800e+02       .1130e+02
2       .5400e+02       .2250e+02
2       .6800e+02       .4500e+02
9
RHINEHART MICROTOX DATA 01832
2       .1090e+02       .5650e+01
2       .1900e+02       .1130e+02
2       .3010e+02       .2250e+02
2       .4680e+02       .4500e+02
9
```

AR100262

RHINEHART TIRE FIRE - TABLE 5

SUMMARY OF MICROTOX® AND SELECTED CHEMICAL DATA - NOVEMBER 1983

SAMPLE NUMBER	STATION DESCRIPTION	MICROTOX NPLD (%)		CHEMICAL RESULTS (ug/L)			
		EC_{20}	EC_{50}	PHENOL/PHENOLICS	CAPROLACTAM	CYANIDE	TOC
01838	T-05 TRIB. TO LOWER CONTAINMENT POND	24	91 ext.	<25/<50	81	31	3,150
01839	T-06 LOWER CONTAINMENT POND	5 ext.	23				
01835	T-04 MASSEY RUN JUST BELOW CONTAINMENT POND	5 ext.	20				
01834	T-03 MASSEY RUN AT OIL SPILL POOL LIMIT	4 ext.	18				
01833	T-02 MID-MASSEY RUN AT VAWCB STATION 01	4 ext.	19	1150/1800	8,800	214	197,000
01832	T-01 SURFACE POOL ON LOWER MASSEY RUN	12	51 ext.				
01830	H-01 HOGUE CR. CONTROL ABOVE VAWCB STA. 03A	ND	ND	ND/51	ND	26	3,000
01831	H-02 HOGUE CR. DOWNSTREAM AT VAWCB STA 02	ND	ND	ND/<50	127	28	7,300
01836	H-03 HOGUE CR. DOWNSTREAM	ND	ND				
01837	H-04 HOGUE CR. GAGING STATION VAWCB STA. 02A	ND	ND				

NOTES: NPLD = Normalized percent light decrease.
ext. = extrapolated value. Minimum and maximum concentrations tested are 5.25% and 45%, respectively.

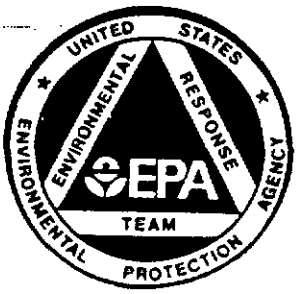
ORIGINAL

APPENDIX A (Part)

AIR MONITORING REPORT

RHINEHART TIRE FIRE
Winchester, Virginia

NOPVEMBER 3 to NOVEMBER 30, 1983



ENVIRONMENTAL RESPONSE TEAM
Woodbridge Avenue, Edison, New Jersey

ORIGINAL
(Red)

UNITED STATES GOVERNMENT

memorandum

DATE: January 30, 1984

REPLY TO ATTN OF: Rodney D. Turpin Rodney D. Turpin
Safety and Occupational Health Manager

SUBJECT: ERT Air Monitoring Efforts at the Rhinehart Tire Fire, Winchester, VA

TO: Thomas Massey, Senior On-Scene Coordinator
EPA, Region III

THRU: Joseph P. Lafornara, Chief H. Allen for JPL
Annalytical Support Section

ACTIONS TAKEN

An air sampling program was developed and implemented on November 3, 1983, following all five steps of the ERT Air Monitoring Guides. The ERT air monitoring efforts covered a period from November 3, 1983 to November 30, 1983. In addition to the standard collection media, samples were collected using the ERT 2-Stage Tenax/Chromosorb 102 thermal desorption tube. A total of 74 samples were collected for analysis. Our program consisted of:

A. Modifying NIOSH P&CAM methods 127 and 168, respectfully, to scan for organic vapors and aromatic amines.

B. Following the ERT 2-Stage Tenax/Chromosorb 102 collection tube procedures. Analyses were performed on a GC/MS utilizing thermal desorption extraction methods.

C. Collecting particulate filter cassettes for both organic and inorganic analysis.

D. Surveying the site with portable field instruments. Instruments used for this survey were the photoionization detector (PID), organic vapor analyzer (OVA's) and a Real-Time Aerosol Monitor (RAM-1).

E. Collecting thermal desorption tubes for on-site OVA FID/GC analysis.

F. In addition to monitoring the plume under normal burning conditions, the fire was also monitored during phases of the spraying operation.

G. Off-site grab sampling for particulates using the RAM-1.

OPTIONAL FORM NO. 10
(REV. 1-80)
GSA FPMR (41 CFR) 101-11.6
5010-114

☆ U.S. GOVERNMENT PRINTING OFFICE: 1983 O - 381-526 (7290)

The sampling scheme consisted of one background station, two off-site downwind stations, 6 on-site stations, and several off-site grab samples with the RAM-1. The following is a breakdown of the type of samples:

1. NIOSH P&CAM - 168 (Aromatic Amines) 3-stage silica gel tubes: 11 samples.

2. NIOSH P&CAM - 127 (Organic Vapor Scan) 150 mg carbon tubes: 5 samples; 600 mg carbon tubes: 15 samples.

3. ERT 2-stage tubes (Organic Vapors) Tenax/Chromosorb 102 collection tubes: 23 samples.

4. OVA FID/GC thermal desorption collection tubes: 6 samples.

5. Particulate cassette analyzer for organic/inorganic contaminants: 14 samples.

RESULTS

See Attachment No. 1 for a summary sheet of sample numbers, volumes, and stations. Attachment No. 2 locates the sample stations. The following is a summary of the results of the actions taken:

A. The following are highlights of the P&CAM 168 aromatic amines samples (See Attachment No. 3 for data summary and detection limits):

1. Sample No. 882/38 collected from Station No. 1 on 11/04/83 was found to have an unknown peak. A gas chromatograph/mass spectrometer (GC/MS) analysis identified it as 0.03 ppm Naphthalene.

2. Sample No. 868/9 (Station No. 1, 11/22/83) and 886/16 (Station No. 1, 11/22/83) were found to contain 0.044 ppm and 0.067 ppm of Aniline, respectively.

3. Sample No. 868/9 (Station No. 1, 11/22/83) and 886/16 were found to contain 0.0092 ppm and 0.014 ppm of p-Nitroaniline.

4. Sample No. 868/9 (Station No. 1, 11/22/83) and 886/16 were found to contain 0.007 ppm and 0.018 ppm of p-Ansidine.

B. The following are highlights of the particulate, mixed cellulose ester filter (MCEF) cassette samples. Some filters were digested with Nitric Acid and particulates were dissolved in the same acid. The resulting solution was diluted to a 50 milliliter volume with 5% HNO_3 in distilled water and analyzed by atomic absorption for inorganic contents. Other filters were extracted with Carbon Disulfide and the resulting extracts were injected in gas chromotographs to evaluate organic content. See Attachment No. 4 for data summary and detection limits.

1. The 7 particulate samples collected for organic analysis did not identify any concentration above the GC detection limit.

2. Sample No. 889/15 (Station No. 1, 11/22/83) identified 0.001 mg/m^3 Arsenic, 1.532 mg/m^3 Zinc, and 0.006 mg/m^3 Copper.

3. Sample No. 861/18 (Station 6, 11/22/83) identified 0.007 mg/m^3 Zinc.

4. Sample No. 865/21 (Station 3, 11/22/83), background identified 0.054 mg/m^3 Zinc.

5. Sample No. 888/36 (Station No. 5, 11/04/83) identified 0.003 ug/l of Zinc; 0.051 ug/l Tellurium and 0.021 ug/l of Arsenic.

C. The following are the highlights P&CAM 127 method organic vapor analysis (See Attachment No. 5 for data summary and detection limits):

CHEMICAL	SAMPLE No./DATE	STATION	CONCENTRATION (ppm)
Acetone	892/29 (11/04/83)	No. 1	0.05
	888/17 (11/22/83)	1	0.09
Methylene Chloride	892/29 (11/04/83)	1	0.24
	883/0 (11/30/83)	1	0.10
	885/0 (11/30/83)	1	0.16
	874/0 (11/30/83)	1	0.10
	867/0 (11/30/83)	1	0.06
	887/7 (11/22/83)	1	0.05
	888/17 (11/22/83)	1	0.12
Chloroform	892/29 (11/04/83)	1	0.23
	858/27 (11/04/83)	5	0.08
	893/26 (11/04/83)	4	0.08
	883/0 (11/30/83)	1	0.29
	885/0 (11/30/83)	1	0.47
	874/0 (11/30/83)	1	0.47
	867/0 (11/30/83)	1	0.20
	887/7 (11/22/83)	1	0.04
	888/17 (11/22/83)	1	0.11

ORIGINAL
(Red)

CHEMICAL	SAMPLE No./DATE	STATION	CONCENTRATION (ppm)
Ethylene Dichloride	892/29 (11/04/83)	No. 1	0.05
	883/0 (11/30/83)	1	0.05
	885/0 (11/30/83)	1	0.08
	874/0 (11/30/83)	1	0.08
	867/0 (11/30/83)	1	0.04
	888/17 (11/22/83)	1	0.02
	887/7 (11/22/83)	1	0.01
Benzene	892/29 (11/04/83)	1	0.74
	858/27 (11/04/83)	5	0.01
	893/26 (11/04/83)	4	0.01
	883/0 (11/30/83)	1	0.62
	885/0 (11/30/83)	1	0.69
	874/0 (11/30/83)	1	0.66
	867/0 (11/30/83)	1	0.50
	887/7 (11/22/83)	1	0.40
	888/17 (11/22/83)	1	0.49
Methyl Ethyl Ketone	892/29 (11/04/83)	1	0.08
	883/0 (11/30/83)	1	0.06
	885/0 (11/30/83)	1	0.09
	874/0 (11/30/83)	1	0.09
	874/0 (11/30/83)	1	0.04
	888/17 (11/22/83)	1	0.02
1,1,1-Trichloroethane	892/29 (11/04/83)	1	0.05
Toluene	892/29 (11/04/83)	1	0.28
	858/27 (11/04/83)	5	0.01
	893/26 (11/04/83)	4	0.003
	883/0 (11/30/83)	1	0.34
	254/0 (11/30/83)	7	0.002
	885/0 (11/30/83)	1	0.37
	874/0 (11/30/83)	1	0.37
	867/0 (11/30/83)	1	0.33
	252/0 (11/30/83)	7	0.003
Xylenes	892/29 (11/04/83)	1	0.18
	858/27 (11/04/83)	5	0.004
	883/0 (11/30/83)	1	0.28
	885/0 (11/30/83)	1	0.30
	874/0 (11/30/83)	1	0.33
	867/0 (11/30/83)	1	0.27

CHEMICAL	SAMPLE No./DATE	STATION	CONCENTRATION (ppm)
Trichloroethylene	892/29 (11/04/83)	No. 1	0.08
	883/0 (11/30/83)	1	0.09
	885/5 (11/30/83)	1	0.12
	874/0 (11/30/83)	1	0.11
	867/0 (11/30/83)	1	0.16
	887/7 (11/22/83)	1	0.18
	888/17 (11/22/83)	1	0.29
Styrene	892/29 (11/04/83)	1	0.03
1,1,2-Trichloroethane	892/29 (11/04/83)	1	0.04
	883/0 (11/30/83)	1	0.06
	885/0 (11/30/83)	1	0.07
	874/0 (11/30/83)	1	0.10
	867/0 (11/30/83)	1	0.07
	887/7 (11/22/83)	1	0.01
	888/17 (11/22/83)	1	0.04
Total Hydrocarbons measured as Toluene	892/29 (11/04/83)	1	0.88
	858/27 (11/04/83)	5	0.01
Mineral Spirits	883/0 (11/30/83)	1	0.55
	885/0 (11/30/83)	1	0.59
	874/0 (11/30/83)	1	0.65
	867/0 (11/30/83)	1	0.50
	887/7 (11/22/83)	1	0.10
	888/17 (11/22/83)	1	0.31

2. The following is a summary of those samples which exceeded the Public Safety Factor (PSF):

COMPOUND	STATION No./DATE	TLV (ppm)	PSF (ppm)	CONCENTRATION (ppm
1,1,2-Trichloroethane	No. 1 (11/04/83)	10	0.023	0.04
	1 (11/22/83)	10	0.023	0.04
	1 (11/30/83)	10	0.023	0.07
	1 (11/30/83)	10	0.023	0.10
	1 (11/30/83)	10	0.023	0.06

ORIGINAL
(Red)

COMPOUND	STATION No./DATE	TLV (ppm)	PSF (ppm)	CONCENTRATION (ppm)
Ethylene Dichloride	No. 1 (11/04/83)	10	0.023	0.05
	1 (11/30/83)	10	0.023	0.04
	1 (11/30/83)	10	0.023	0.08
	1 (11/30/83)	10	0.023	0.08
	1 (11/30/83)	10	0.023	0.05
Xylenes	1 (11/30/83)	100	0.227	0.28
	1 (11/30/83)	100	0.227	0.30
	1 (11/30/83)	100	0.227	0.33
	1 (11/30/83)	100	0.227	0.27
Trichloroethylene	1 (11/22/83)	50	0.114	0.29
	1 (11/22/83)	50	0.114	0.18
	1 (11/30/83)	50	0.114	0.16
	1 (11/30/83)	50	0.114	0.12
Toluene	1 (11/04/83)	100	0.227	0.28
	1 (11/30/83)	100	0.227	0.33
	1 (11/30/83)	100	0.227	0.37
	1 (11/30/83)	100	0.227	0.34
	5 (11/30/83)	100	0.227	0.37
Methylene Chloride	1 (11/04/83)	100	0.227	0.24
Chloroform	1 (11/04/83)	10	0.023	0.23
	5 (11/04/83)	10	0.023	0.08
	4 (11/04/83)	10	0.023	0.08
	1 (11/22/83)	10	0.023	0.11
	1 (11/22/83)	10	0.023	0.04
	1 (11/30/83)	10	0.023	0.20
	1 (11/30/83)	10	0.023	0.47
	1 (11/30/83)	10	0.023	0.47
	1 (11/30/83)	10	0.023	0.29
Benzene	1 (11/04/83)	10	0.023	0.74
	1 (11/22/83)	10	0.023	0.49
	1 (11/22/83)	10	0.023	0.40
	1 (11/30/83)	10	0.023	0.50
	1 (11/30/83)	10	0.023	0.66
	1 (11/30/83)	10	0.023	0.69
	1 (11/30/83)	10	0.023	0.62

D. The following are highlights of the ERT 2-stage Tenax/Chromosorb 102 data (See Attachment No. 6 for data summary and detection limits). Those collected on 11/03/83 revealed the following low levels:

1. Background samples: - The 11/04/83 background samples did not identify any significant compounds after correction for the blank.

Benzene	<0.02
Possible Hydrocarbon	<0.03
Unknown	<0.03
Hydrocarbon	<0.03

The 11/22/83 background samples revealed the following compounds:

Nonanal	0.002
Decanal	<0.002
Possible Lauric Acid	0.002
Myristic Acid	0.002
Possible Palmitic Acid	<0.0009
Benzaldehyde	0.006
$E_{10}H_{14}$ Alkylbenzene	<0.004
Styrene	<0.005
Acetophene	<0.004
Ethylstyrene	<0.004
Unsaturated Hydrocarbon	<0.003
Hydrocarbon and Unknown	<0.002
Unknown	0.007
Unknown	0.01
Unknown	0.04
Acetic Acid	0.016

2. While the number of compounds identified is too large to summarize, the concentrations ranged from <0.001 ppm for Ethylbenzene, Xylene, Styrene (Sample No. A21, 11/04/83) to 1 ppm for Benzene (Sample No. K/18, 11/04/83 and Sample No. F/13, 11/22/83) and Toluene (Sample No. F/13, 11/22/83).

3. Station No. 1 samples were consistently positive while the other samples did not identify any significant concentrations with the following exceptions:

   a. Station No. 4, sample R/20, 11/04/83 identified 18 compounds ranging in concentration from 0.004 ppm for Trimethyl phenyl indane to 0.26 ppm for Benzene.

b. Station No. 5, sample A/21, 11/04/83 identified 9 compounds ranging in concentrations from <0.0009 ppm for Naphthalene to 0.006 ppm for Toluene.

c. Station No. 5, sample I/25, 11/04/83 identified 5 compounds ranging in concentrations from <0.2 ppm for Trichlorofluoromethane, Ethylbenzene and Xylene to 0.4 ppm for Benzene.

d. Station No. 6 (Decon), sample J/12, 11/22/83 identified 9 compounds ranging in concentrations from 0.004 ppm for an Unknown to 0.01 ppm for an Unknown and Acetic Acid.

E. Attachment No. 7 is the result of the organic vapor analysis (FID/GC) from the thermal desorption collection tubes on-site. The following is a summary of this data:

1. Station No. 1 results revealed 12 GC peaks for 11/03/83 and 10 GC peaks for 11/04/83.

2. Station No. 4 results revealed 2 GC peaks for 11/03/83 and 4 GC peaks for 11/04/83.

3. Station No. 3 (background) results revealed 1 GC peak for 11/03/83 while Station No. 5 results revealed 5 GC peaks for 11/04/83.

F. On-Site grab samples with the Real-Time Aerosil Monitor (RAM-1) revealed the following:

1.	11/03/83 - Station No. 1	(a.m.)	22.0	mg/m^3	
	- Rhinehart House	(a.m.)	0.03	mg/m^3	
2.	11/04/83 - Station No. 1	(a.m.)	34.6	mg/m^3	
	- Station No. 5	(a.m.)	19.0	mg/m^3	
3.	11/22/83 - Station No. 1	(2 p.m.)	40	mg/m^3	
	- Station No. 3	(2 p.m.)	0.010	mg/m^3	(Background)
	- Station No. 4	(2 p.m.)	0.038	mg/m^3	
	- Station No. 5	(2 p.m.)	1.40	mg/m^3	
	- Station No. 6	(2 p.m.)	0.014	mg/m^3	
	- Station No. 7	(2 p.m.)	0.014	mg/m^3	
4.	11/22/83 - Station No. 3	(10 p.m.)	0.060	mg/m^3	(Background)
	- Station No. 4	(10 p.m.)	0.06	mg/m^3	
	- Station No. 5	(10 p.m.)	0.06	mg/m^3	
	- Station No. 7	(10 p.m.)	0.045	mg/m^3	

5. 11/23/83 - Station No. 3 (2 a.m.) 0.015 mg/m^3 (Backgr
- Station No. 4 (2 a.m.) 0.024 mg/m^3
- Station No. 5 (2 a.m.) 0.026 mg/m^3
- Station No. 7 (2 a.m.) 0.026 mg/m^3

6. 11/23/83 - Station No. 3 (6:30 a.m.) 0.050 mg/m^3 (Background)
- Station No. 4 (6:30 a.m.) 0.028 mg/m^3
- Station No. 5 (6:30 a.m.) 0.090 mg/m^3
- Station No. 6 (6:30 a.m.) 0.040 mg/m^3
- Station No. 7 (6:30 a.m.) 0.130 mg/m^3

G. Off-Site grab samples with the RAM-1 revealed the following:

1. On 11/03/83 Rt. 608 downwind of sites ranged from 0.04 mg/m^3 to 0.07 mg/m^3 with the exception of a grab sample collected at the Raymond A. Carter residence which was 0.233 mg/m^3.

2. 11/30/83 - Station No. 1 Off: - 0.19 mg/m^3
- Station No. 2 Off: - 0.20 mg/m^3

CONCLUSIONS

An important factor to consider in reviewing this data is that the ERT air monitoring guides are designed to give a broad spectrum of possible air contaminants. While the type of collection media, flow rates, humidity, ambient temperatures, etc. all have some effect on the reported concentrations, it is correct to say that the amounts reported are the minimum amounts present during the sampling period. This is especially true with the ERT 2-stage Tenax/Chromosorb 102 tube. This tube has only been used at a few sites and we are still experimenting with the sample rates and volumes.

While the concentrations reported by the ERT 2-stage tube are relatively low when compared to the NIOSH P&CAM samples collected at the same stations, the number of compounds identified is considerably greater. This indicates there are possibly some unidentified concentrations of compounds present that are not collected/desorbed from the P&CAM methods or their concentrations are below the P&CAM detection limits.

On 11/03/83 and 11/04/83, ERT recommended to the on-scene coordinator and CDC that an Air Pollution Alert be released advising those with respiratory problems to keep all windows closed and avoid being outside under the plume. This recommendation was based on the data furnished by the field instruments (Real-Time Aerosol Monitor, RAM-1, and Organic Vapor Analyzer, OVA (FID/GC) as well as on-site observations of plume behavior. All off-site data generated by the various collection media and techniques were immediately reported (verbal) to the EPA Region III, TAT, at the command post. Either Region III, TAT, or ERT relayed this information to CDC. ERT was in agreement with the CDC Air Pollution Alert notice.

The conclusions are based on the data collected during the sampling period and potential contamination. If site conditions differ from the sampling period, additional sampling is recommended.

When applicable, we use an estimated health alert concentration, which we term the "Public Safety Factor" (PSF) to assist in the evaluation of the air data. While the Public Safety Factor is not a safe/non-safe designation for a specific concentration, it is an action level used by ERT during chemical spill, fires, explosion responses, etc. to alert those professionals whose responsibility it is to make occupational health and safety, as well as public health/ environmental effects decisions from air data. The Public Safety Factor is the American Conference of Governmental Industrial Hygienist TLV's expanded to include a 24 hour exposure condition while providing a safety factor. PSF is calculated by dividing the TLV by 440.

A. P&CAM 168 AROMATIC AMINES:

1. Of the two days (11/04/83 and 11/22/83) samples were collected and analyzed for aromatic amines only the 11/22/83 sample results indicated a positive finding. None of the samples indicated a level at or near the TLV and/or PEL (OSHA's Permissible Exposure Level). Three of the four positive samples did exceed the Public Safety Factor; however, the positive results were found only in the plume.

   Three of the aromatic amines Public Safety Factors are based on TLV's with a skin notation. In evaluating the extent of potential hazard, one must consider potential route(s) of exposure. The data indicated that the aromatic amines were collected only at Station No. 1, which was directly inside the plume, and only on 11/22/83. Since the most logical route of exposure is direct contact with the plume, and since a 100-fold dilution is normally achieved a short distance away, it was concluded that the aromatic amines present did not present a grave health risk to the surrounding public or the environment. However, if site conditions vary significantly from the period sampled further evaluation is recommended. In addition, the fact that aromatic amines are present should be evaluated as a potential for exposure from the Occupational Health and Safety prospective.

B. ORGANIC/INORGANIC PARTICULATES:

1. Organics - Since standard sampling/analysis procedures are not published for organic particulates, the sampling method was adapted by modifing P&CAM 127 collecton and extraction techniques. Of the 7 particulate samples which were collected for organic analysis, two were collected within the plume (Station No. 1) and 2 were collected off-site. None of the samples revealed organics above the GC detection limit. Thus, it is reasonable to conclude

that the plume particulates did not contain high concentrations of organics. The data indicates that particulate fall-out should not have an adverse environmental effect.

2. Inorganics - The inorganic pariculate samples revealed the presence of some inorganics at Station No. 1, 6, 3, and 5. The concentrations found at these sampling points were well below the TLV or PEL, and should not pose environmental problems.

C. P&CAM 127 ORGANIC VAPORS:

1. With the exceptions of Stations No. 4 and 5 on 11/04/83, Stations No. 5 and 7 on 11/30/83, and Station No. 1 on 11/04, 11/22, and 11/30/83, the other stations did not detect organic vapors above the GC detection limit. If a peak had been observed other than one of the standards identified in P&CAM 127 and was of sufficient concentration, it would have been analyzed by GC/MS. However, if the peak concentration was not sufficient for GC/MS analyses, the total number of unknown peaks would be added and a total hydrocarbon concentration quantified as if it was Toluene.

2. Of the 14 organic identified by this method, 2 do not have TLV information available (mineral spirits and total hydrocarbons measured as Toluene). Of the 12 organic identified with TLV's 4 compounds did not exceed the Public Safety Factor (Acetone, 1,1,1-Trichloroethane, Methyl Ethyl Ketone, Styrene) while the remaining 8 compounds (See Results section, paragraph (c)(2)) exceeded the Public Safety Factor during at least one sampling period.

   With the exception of Station No. 5 on 11/04/83 (Chloroform 0.08 ppm), and Station No. 4 on 11/04/83 (Chloroform 0.08 ppm), all the other concentrations which exceeded the Public Safety Factor were found at Station No. 1 (plume sample) during the sampling period.

   Since the data showed that the worst-case condition occurs only in the plume and that concentrations exceed the Public Safety Factor action levels by factors generally less than tenfold, it is reasonable to conclude that downwind dilution would mitigate any adverse effects within a short distance. Although the 11/04/83 data was not available when ERT recommended an air pollution alert based on the RAM-1, field FID/GC, and observation, some data was available on 11/09/83 and this confirmed our field readings.

D. ERT 2-STAGE TENAX/CHROMOSORB 102 DATA:

While the ERT 2-stage Tenax/Chromosorb 102 collection tube is still undergoing field evaluation, its objective is to furnish a

convenient screening medium for air samples where multiple contaminants might be present. Also, it provides a rapid analytical turn around time. Since compounds are collected in both stages of the collection tube, it is not possible to determine the amount of break-through. Therefore, the data reported is the minimum concentration of the contaminant.

Of the 14 organics identified by the P&CAM 127 method, the ERT 2-stage collection tube identified 5 of those compounds. While the concentrations are not in total agreement, the following shows their relationship:

COMPOUND	DATE/STATION NO.	ERT 2-STAGE (ppm)	P&CAM 127 (ppm)
Methylene Chloride	11/04/83 No. 1	----	0.24
	11/04/83 4	0.08	----
Toluene	11/04/83 1	0.27	0.28
	11/04/83 1	0.20	----
	11/04/83 4	0.03	0.003
	11/22/83 1	1.00	----
	11/22/83 1	0.02	----
	11/03/83 1	0.12	not collected
Benzene	11/03/83 1	0.14	not collected
	11/04/83 1	1.20	0.74
	11/22/83 1	0.40	0.40
	11/22/83 1	0.10	----
	11/22/83 1	1.00	0.49
	11/04/83 4	0.26	0.01
Styrene	11/03/83 1	0.07	not collected
	11/04/83 1	0.08	0.03
	11/22/83 1	0.04	----
	11/22/83 1	0.20	----
	11/22/83 1	0.04	----
	11/04/83 4	0.06	----
Xylenes	11/03/83 1	0.06	not collected
	11/04/83 1	0.08	0.18
	11/22/83 1	0.05	----
	11/22/83 1	0.04	----
	11/22/83 1	0.20	----
	11/04/83 4	0.01	----

RHINEHART TIRE FIRE - 11/03/83 thru 11/30/83

Station #	ERT 2-Stage Sample # (Vol. in liter)	MCEF 0.45 u Sample # (Vol. in liter)	600 mg Carbon Sample # (Vol. in liter)	3 Stage Silica Sample # (Vol. in liter)	Carbon/Tenax Thermal Desorption Tubes (Vol. in liter)
11/03/83	J/1 (6.16)	848/11 (552)			897/14 (64.35)
1	A/5 (11.66)				
2	All Pumps and Samples were destroyed in fire.....				
3- (Background)	F/4 (4.36) C/7 (10.71)	888/13 (588.8)			894/15 (83)
4	E/3 (2.69)* R/8 (7.14)*	889/10 (307.5)			865/16 (67.7)
11/04/83					
1	K/18 (10.33) J/22 (4.99)	889/31 (414)	892/29 (360)	882/38 (163.6)	866/42 (22.96)
3- (Background)	C/19 (9.16) F/23 (3.59)	890/35 (414)	864/28 (360)	857/37 (360)	
4	R/20 (9.38) E/24 (13.55)	887/30 (414)	893/26 (360)**	881/40 (360)	886/41 (72)
5	A/21 (41.49) I/25 (4.11)	888/36 (414)	858/27 (360)	878/39 (360)	865/43 (90)
1 off		848/32 (395.4)	893/47 (344.6)	857/52 (347)	
2 off		890/44 (319.6)	864/48 (318.4)	878/51 (320)	

TABLE 1 - AIR MONITORING STATION DESCRIPTIONS

ORIGINAL (Red)

Station #	ERT 2-Stage Sample # (Vol. in liter)	MCEF 0.45 u Sample # (Vol. in liter)	600 mg Carbon Sample # (Vol. in liter)	3 Stage Silica Sample # (Vol. in liter)	Carbon/Tenax Thermal Desorption Tubes (Vol. in liter)
11/22/83					
1 (am)	A/1 (9.02) E/4 (4.04)	865/6 (348)	887/7 (360)	868/9 (270)	
1 (pm)	F/13 (4.8) B/14 (8.79)	889/15 (360)	888/17 (360)	886/16 (270)	
3 (am) (Background)	R/2 (10.14) J/3 (5.00)	889/5 (360)	888/8 (360)	886/10 (303.8) 886/20 (270)	
3 (pm) (Background)	A/19 (14.92)	865/21 (360)	887/22 (360)	868/9 (270)	
6 (pm) (Decon)	R/11 (11.02) J/12 (5.52)	861/18 (421.2)			

Station #	150 mg Carbon Sample # (Vol. in liter)	MCEF 0.45 u Sample # (Vol. in liter)	600 mg Carbon Sample # (Vol. in liter)	3 Stage Silica Sample # (Vol. in liter)	Carbon/Tenaz Thermal Desorption Tubes (Vol. in liter)
11/30/83					
1	874/0 (44.25) 867/0 (88.5)		885/0 (88.5) 883/0 (177.4)		
6(Decon)	225/0 (85.5)		253/0 (171.2)		
7	252/0 (88.7)		254/0 (177.6)		
3 (Background)	856/0 (78.4)		251/0 (157.4)		

*Samples E/3 and R/8 on 11/3/83 were both identified as R/8

**893/26 marked 897/33

TABLE 4 - SAMPLE DESCRIPTIONS (concl.)

ORIGINAL (Red)

ORIGINAL
(Red)

RHINEHART TIRE FIRE - TABLE 2
SELECTED WATER QUALITY AND FLOW DATA

STATION DESCRIPTION /SAMPLED BY	HOGUE CREEK CTRL/WCB	HOGUE CR CTRL/ ERT/WCB	RHINE-HART PND WATER	MASSEY RUN WAT/ ERT/WCB	LOWER MASSEY RUN/WCB	HOGUE CR DOWN-STREAM	HOGUE CR GAGING STATION	HOG[redacted] GAG FLOW
STATION NUMBER - ERT	NA	H-01	NA	T-02	>T-01	H-02	H-04	H-04
STATION NUMBER - WCB	03	03A	R.P.	01	04<->01	02	02A	02A
SAMPLING DATE 11/03/83	UNITS ug/L							2.8 CFS
Benzene	0.3			0.9	1.3	0.5		
Toluene	<0.2			1.7	2.3	<0.2		
Ethylbenzene	0.8			4.6	1.2	<0.2		
Xylenes	<0.2			2.4	0.6	<0.2		
Caprolactam	140.			13000.	4800.	210.		
SAMPLING DATE 11/10/83	UNITS ug/L				(04 MIX)			10.8 CFS
Benzene		<0.2		1.5		0.3		
Toluene		<0.2		3.3		0.3		
Ethylbenzene		<0.2		9.1		0.2		
Xylenes		<0.2		7.6		0.3		
Caprolactam	140.	<1.		8500.	9000.	1600.		
SAMPLING DATE 11/16/83	UNITS ug/L							9.7 CF
Benzene				1.1		<0.2	<0.2	
Toluene				7.2		0.2	<0.2	
Ethylbenzene				13.4		0.2	<0.2	
Xylenes				26.9		0.5	<0.2	
Caprolactam								
SAMPLING DATE 11/17/83	UNITS ug/L							6.83 CF
Benzene				2.0		<0.2	<0.2	
Toluene				5.1		<0.2	<0.2	
Ethylbenzene				6.0		0.8	<0.2	
Xylenes				18.1		<0.2	<0.2	
Caprolactam								
SAMPLING DATE 11/18/83	UNITS ug/L							15.0 CF
Benzene				<10./0.5		/ 0.2	<0.2	
Toluene				<10./1.1		/<0.2	<0.2	
Ethylbenzene				17./3.5		/<0.2	<0.2	
Xylenes				3.3		/<0.2	<0.2	
Caprolactam				8800./		127./		
SAMPLING DATE 11/29/83	UNITS ug/L		(12/2/83)					15.0 CF
Benzene			757.	5.1		<0.2	0.2	
Toluene			621.	10.9		0.3	<0.2	
Ethylbenzene			296.	1.9		1.0	1.7	
Xylenes				5.9		<0.2	<0.2	
Caprolactam			294000.	12900.		110.	84.	
SAMPLING DATE 12/06/83	UNITS ug/L							40.0 CF
Benzene			141.	4.7		0.5	1.1	
Toluene			171.	9.4		0.7	<0.2	
Ethylbenzene			112.	7.6		0.5	<0.2	
Xylenes			88.	7.1		0.4	<0.2	
Caprolactam			66000.	11000.		340.	210.	
SAMPLING DATE 12/19/83	UNITS ug/L							15.6 CF
Benzene				0.5		0.2	<0.2	
Toluene				1.1		<0.2	<0.2	
Ethylbenzene				3.5		<0.2	<0.2	
Xylenes				3.3		<0.2	<0.2	
Caprolactam				9700.			44.	

AR100279

This information was not available when ERT recommended that the CDC declare an Air Pollution Alert based on the field direct reading instruments and visual observations (see below). The The ERT 2-stage tube data confirmed this action after the fact.

E. ON-SITE THERMAL DESORPTION AND FIELD OVA GC/FID RESULTS:

The data collected with this field instrument on 11/03/83 and 11/04/83, indicated the presence of airborne contaminants above background levels at Stations No. 1, 4 and 5. Based on this data as well as the RAM-1 data, ERT recommended an Air Pollution Alert. As additional data were received from the other methods/ collection media, it confirmed the presence of organic concentrations above background at Stations No. 1, 4 and 5.

F. ON-SITE GRAB SAMPLES WITH THE RAM-1:

While the data collected along Route 608 was subject to interference from residential woodburning stoves, the presence of the plume over this area was visually confirmed via a helicopter flight. In addition to the RAM-1 reading varying from 22 mg/m^3 to 40 mg/m^3, visual contact could not be maintained with members of the Air Sampling Team at Station No. 1 some 50-60 feet away.

Attachments

cc: Steve Dorrler
Harry Allen

RHINEHART TIRE FIRE - 11/03/83 thru 11/30/83

Station #	ERT 2-Stage Sample # (Vol. in liter)	MCEF 0.45 u Sample # (Vol. in liter)	600 mg Carbon Sample # (Vol. in liter)	3 Stage Silica Sample # (Vol. in liter)	Carbon/Tenax Thermal Desorption Tubes (Vol. in liter)
11/03/83	J/1 (6.16)	848/11 (552)			897/14 (64.35)
1	A/5 (11.66)				
2	All Pumps and Samples were destroyed in fire.....				
3- (Background)	F/4 (4.36) C/7 (10.71)	888/13 (588.8)			894/15 (83)
4	E/3 (2.69)* R/8 (7.14)*	889/10 (307.5)			865/16 (67.7)
11/04/83					
1	K/18 (10.33) J/22 (4.99)	889/31 (414)	892/29 (360)	882/38 (163.6)	866/42 (22.96)
3- (Background)	C/19 (9.16) F/23 (3.59)	890/35 (414)	864/28 (360)	857/37 (360)	
4	R/20 (9.38) E/24 (13.55)	887/30 (414)	893/26 (360)**	881/40 (360)	886/41 (72)
5	A/21 (41.49) 1/25 (4.11)	888/36 (414)	858/27 (360)	878/39 (360)	865/43 (90)
1 off		848/32 (395.4)	893/47 (344.6)	857/52 (347)	
2 off		890/44 (319.6)	864/48 (318.4)	878/51 (320)	

Station #	ERT 2-Stage Sample # (Vol. in liter)	MCEF 0.45 u Sample # (Vol. in liter)	600 mg Carbon Sample # (Vol. in liter)	3 Stage Silica Sample # (Vol. in liter)	Carbon/Tenax Thermal Desorption Tubes (Vol. in liter)
11/22/83					
1 (am)	A/1 (9.02) E/4 (4.04)	865/6 (348)	887/7 (360)	868/9 (270)	
1 (pm)	F/13 (4.8) B/14 (8.79)	889/15 (360)	888/17 (360)	886/16 (270)	
3 (am) (Background)	R/2 (10.14) J/3 (5.00)	889/5 (360)	888/8 (360)	886/10 (303.8) 886/20 (270)	
3 (pm) (Background)	A/19 (14.92)	865/21 (360)	887/22 (360)	868/9 (270)	
6 (pm) (Decon)	R/11 (11.02) J/12 (5.52)	861/18 (421.2)			

Station #	150 mg Carbon Sample # (Vol. in liter)	MCEF 0.45 u Sample # (Vol. in liter)	600 mg Carbon Sample # (Vol. in liter)	3 Stage Silica Sample # (Vol. in liter)	Carbon/Tenaz Thermal Desorption Tubes (Vol. in liter)
11/30/83					
1	874/0 (44.25) 867/0 (88.5)		885/0 (88.5) 883/0 (177.4)		
6(Decon)	225/0 (85.5)		253/0 (171.2)		
7	252/0 (88.7)		254/0 (177.6)		
3 (Background)	856/0 (78.4)		251/0 (157.4)		

*Samples E/3 and R/8 on 11/3/83 were both identified as R/8

**893/26 marked 897/33


ATTACHMENT 2
ORIGINAL
(Red)
ERT AIR MONITORING EFFORTS
RHINEHART TIRE FIRE
(NOT TO SCALE)
GENERAL WIND DIRECTION
BCKGRND #3
ONE OFF
TWO OFF
Mt. Pleasant
Cem.
Cem.
Quarries
Creek
Run
Clover Gap
AR100283

ATTACHMENT #3

Clayton Environmental Consultants, Inc.
Raritan Center • 160 Fieldcrest Ave • Edison, New Jersey 08837 • Telephone (201) 225-6040
(formerly Occupational Health Services)

ORIGINAL
(Red)

November 30, 1983

Mr. Kenneth Sullivan
Operations Manager
I. T. CORPORATION - EERU
GSA Raritan Depot
Bldg. 209, Bay F
Edison, New Jersey 08837

CEC Job No. 8695-47
Re: Winchester, VA. Site

Dear Mr. Sullivan:

The samples which you submitted to us on November 7, 1983 were analyzed and reported to you on November 10, 14 and 18, 1983.

One silica gel sample (#882/38) showed presence of an unknown peak which was analyzed by Gas Chromatography/Mass Spectrometer for identification, has been completed. The unknown peak is identified as Napthalene in the range of 20 to 30 micrograms level.

Lab I.D.#	Sample Description	Vol. in Liters	Conc. of Naphthalene (ug)	(mg/m^3)	(ppm)
16275	882/38 Silica Gel 3-Stage	163.6	20-30	0.18	0.03

Above reported results of milligrams per cubic meter and parts per million are calculated utilizing 30 micrograms value. Therefore, this should be considered as maximum exposure.

If there are any questions, please advise. Thank you.

Very truly yours,

Kirit H. Vora, Manager
New Jersey Office and Laboratory

KHV:dc

Main Office 25711 Southfield Road • Southfield, Michigan 48075 • Telephone (313) 424-8860
A Technical Service of Marsh & McLennan

Clayton Environmental Consultants, Inc.

Results of Analyses

for

I. T. Corporation

CEC Job No. 8695-47

Lab Number	Sample Description	Air Volume Liters	Aniline (mg)	Aniline (mg/m^3)	Aniline (ppm)	Dimethylaniline (mg)	Dimethylaniline (mg/m^3)	Dimethylaniline (ppm)
16274	857/37	360.0	<0.010	<0.028	<0.007	<0.010	<0.028	<0.006
16275	882/38	163.6	<0.010	<0.061	<0.016	<0.010	<0.061	<0.012
16276	878/39	360.0	<0.010	<0.028	<0.007	<0.010	<0.028	<0.006
16277	881/40	360.0	<0.010	<0.028	<0.007	<0.010	<0.028	<0.006
16278	857/52	347.0	<0.010	<0.029	<0.008	<0.010	<0.029	<0.006
16279	878/51	320.0	<0.010	<0.031	<0.008	<0.010	<0.031	<0.006

Limit of Detection: 0.010 mg 0.010 mg

Clayton Environmental Consultants, Inc.

Results of Analyses

for

I. T. Corporation

CEC Job No. 8695-47

Lab Number	Sample Description	Air Volume Liters	o-Toluidine (mg)	o-Toluidine (mg/m^3)	o-Toluidine (ppm)	2,4-Xylidine (mg)	2,4-Xylidine (mg/m^3)	2,4-Xylidine (ppm)
16274	857/37	360.0	<0.010	<0.028	<0.006	<0.010	<0.028	<0.006
16275	882/38	163.6	<0.010	<0.061	<0.014	<0.010	<0.061	<0.012
16276	878/39	360.0	<0.010	<0.028	<0.006	<0.010	<0.028	<0.006
16277	881/40	360.0	<0.010	<0.028	<0.006	<0.010	<0.028	<0.006
16278	857/52	347.0	<0.010	<0.029	<0.007	<0.010	<0.029	<0.006
16279	878/51	320.0	<0.010	<0.031	<0.007	<0.010	<0.031	<0.006
Limit of Detection:			0.010 mg			0.010 mg		

Clayton Environmental Consultants, Inc.

Results of Analyses

for

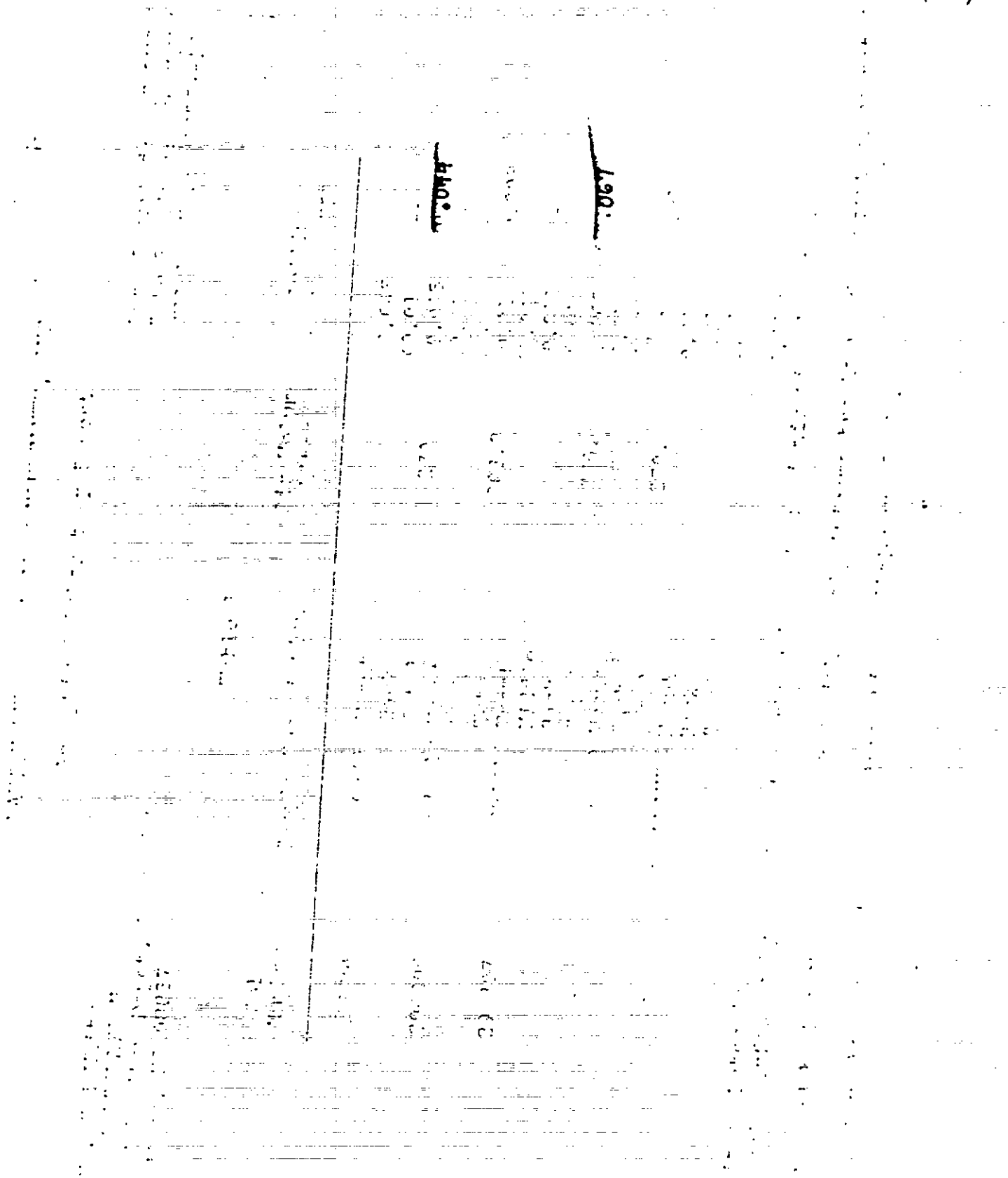
I. T. Corporation

CEC Job No. 8695-47

Lab Number	Sample Description	Air Volume Liters	o-Anisidine (mg)	o-Anisidine (mg/m^3)	o-Anisidine (ppm)	p-Nitroaniline (mg)	p-Nitroaniline (mg/m^3)	p-Nitroaniline (ppm)
16274	857/37	360.0	<0.010	<0.028	<0.006	<0.010	<0.028	<0.005
16275	882/38	163.6	<0.010	<0.061	<0.012	<0.010	<0.061	<0.011
16276	878/39	360.0	<0.010	<0.028	<0.006	<0.010	<0.028	<0.005
16277	881/40	360.0	<0.010	<0.028	<0.006	<0.010	<0.028	<0.005
16278	857/52	347.0	<0.010	<0.029	<0.006	<0.010	<0.029	<0.005
16279	878/51	320.0	<0.010	<0.031	<0.006	<0.010	<0.031	<0.006

Limit of Detection: 0.010 mg 0.010 mg

ORIGINAL
(Red)



AR100288

ORIGINAL
(Red)

AR100289

Lab Number						
295305	8681	270.	<0.01	<0.007	0.01	0.007
295306	8681 10	303.9	<0.01	<0.007	0.01	
295307	8681 15	270.	<0.01	<0.007	0.01	0.018
295308	8681 20	270.	<0.01	<0.007	0.01	
295309	FLANK		<0.01	<0.007	0.01	

Limit of Detection:
[illegible] determined by the chromatography data and the ionization factor [illegible]

[illegible] for 8-keotone have been corrected for the extraction efficiency of 83%.

[illegible] of preservatives of the vegetable oil used in the field sampling da[illegible]
[illegible] by IT Corporation.

Please contact us at (312) 424-8060 if you have any questions. [illegible]
[illegible]

Robert Lieberfeld Jr., C.I.H.
Manager, Laboratory Services
Fairfield Office

AR100290
AR 23

ORIGINAL
(Red)

Attachment No. ORIGINAL (Red)

Results of Analyses
for
I. T. Corporation
CEC Job No. 8745-47

AR 1000A

Lab Number	Sample Description	Air Vol. Liters	Copper Cu (µg/sample)	Copper Cu (mg/m^3)	Nickel Ni (µg/sample)	Nickel Ni (mg/m^3)	Silver Ag (µg/sample)	Silver Ag (mg/m^3)	Chromium Cr (µg/sample)	Chromium Cr (mg/m^3)
16673	889/5	360.0	<1.25	<0.003	<2.50	<0.007	<1.25	<0.003	<1.25	<0.003
16674	865/6	348.0	<1.25	<0.004	<2.50	<0.007	<1.25	<0.004	<1.25	<0.004
16675	Blank	-	<1.25	-	<2.50	-	<1.25	-	<1.25	-
Analytical Method:			flame P&CAM 173/AAS		flame P&CAM 173/AAS		flame P&CAM 173/AAS		flame P&CAM 173/AAS	
Limit of Detection:			1.25 µg/sample		2.50 µg/sample		1.25 µg/sample		1.25 µg/sample	

AR 2.2.1.N, #4, 9/1/86

ORIGI... (Re...

Results of Analyses

for

I. T. Corporation

CEC Job No. 8745-47

Lab Number	Sample Description	Air Vol. Liters	Mercury Hg (µg/sample)	Mercury Hg (mg/m^3)	Arsenic As (µg/sample)	Arsenic As (mg/m^3)	Zinc Zn (µg/sample	Zinc Zn (mg/m^3)	Tellurium Te (µg/sample	Tellurium Te (mg/m^3)
16673	889/5	360.0	<0.50	<0.001	<0.25	<0.001	<0.63	<0.002	<12.50	<0.035
16674	865/6	348.0	<0.50	<0.001	0.30	0.001	108.19	0.311	<12.50	<0.036
16675	Blank	-	<0.50	-	<0.25	-	<0.63	-	<12.50	-
Analytical Method:			P&CAM 173/MHS-10		P&CAM 173/MHS-10		P&CAM 173/AAS flame		P&CAM 173/AAS flame	
Limit of Detection:			0.50 µg/sample		0.25 µg/sample		0.63 µg/sample		12.50 µg/sample	

AR100291

Z. n. #-4, 17 296

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.

Results of Analyses

for

I. T. Corporation

CEC Job No. 8747-47

AR100292

Lab Number	Sample Description	Air Vol. Liters	Mercury Hg (µg/sample)	Mercury Hg (mg/m³)	Arsenic As (µg/sample)	Arsenic As (mg/m³)	Zinc Zn (µg/sample)	Zinc Zn (mg/m³)	Tellurium Te (µg/sample)	Tellurium Te (mg/m³)
16707	#889/15	360	<0.50	<0.001	0.52	0.001	551.49	1.532	<12.50	<0.035
16708	#861/18	421.2	<0.50	<0.001	<0.25	<0.001	2.89	0.007	<12.50	<0.030
16709	#865/21	360	<0.50	<0.001	<0.25	<0.001	19.34	0.054	<12.50	<0.035

Analytical Method:	P&CAM 173/MHS-10	P&CAM 173/MHS-10	P&CAM 173/AAS flame	P&CAM 173/AAS flame
Limit of Detection:	0.50 µg/sample	0.25 µg/sample	0.63 µg/sample	12.50 µg/sample

A.V. #4, 03 3016

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.

Results of Analyses

for

I.T. Corporation

CEC Job No. 8747-47

AR100293

Lab Number	Sample Description	Air Vol. Liters	Copper Cu (µg/sample)	Copper Cu (mg/m³)	Nickel Ni (µg/sample)	Nickel Ni (mg/m³)	Silver Ag (µg/sample)	Silver Ag (mg/m³)	Chromium Cr (µg/sample)	Chromium Cr (mg/m³)
16707	#889/15	360	2.14	0.006	<2.50	<0.007	<1.25	<0.003	<1.25	<0.003
16708	#861/18	421.2	<1.25	<0.003	<2.50	<0.006	<1.25	<0.003	<1.25	<0.003
16709	#865/21	360	<1.25	<0.003	<2.50	<0.007	<1.25	<0.003	<1.25	<0.003
Analytical Method:			P&CAM 173/AAS flame		P&CAM 173/AAS flame		P&CAM 173/AAS flame		P&CAM 173/AAS flame	
Limit of Detection:			1.25 µg/sample		2.50 µg/sample		1.25 µg/sample		1.25 µg/sample	

A.N. #47, Pg. 7

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.

Results of Analyses

for

I. T. Corporation

CEC Job No. 8695-47

AR100294

Lab Number	Sample Description	Copper (µg/ sample)	Nickel (µg/ sample)	Zinc (µg/ sample)	Silver (µg/ sample)	Chromium (µg/ sample)	Tellurium (µg/ sample)	Mercury (µg/ sample)	Arsenic (µg/ sample)
16296	#888/36	<2.5	<5.00	1.25	<2.5	<2.5	21.00	<0.50	8.77
Analytical Method:		P&CAM173	P&CAM173	P&CAM173	P&CAM173	P&CAM173	P&CAM173	MHS-10	MHS-10
Limit of Detection:		0.05 µg/mℓ	0.1 µg/mℓ	0.025 µg/mℓ	0.05 µg/mℓ	0.05 µg/mℓ	0.5 µg/mℓ	0.01 µg/mℓ	0.01 µg/mℓ

7.2.87

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.

Results of Analyses

for

I. T. Corporation

CEC Job No. 8695-47

Lab Number	Sample Description	Air Volume Liters	Total Hydrocarbons as Hexanes (mg)	(mg/m³)	(ppm)
16289	889/10	307.5	<0.017	<0.055	<0.02
16290	848/11	552.0	<0.017	<0.031	<0.01
16291	888/13	588.8	<0.017	<0.029	<0.01
16292	887/30	414.0	<0.017	<0.041	<0.01
16293	889/31	414.0	<0.017	<0.041	<0.01
16294	848/32	395.37	<0.017	<0.043	<0.01
16295	890/35	414.0	<0.017	<0.041	<0.01
16297	890/44	367.54	<0.017	<0.046	<0.01

Analytical Method: P&CAM 127

Limit of Detection: 0.017 mg

Analyzed from Particulate Filter

A.V. 8/6/96

AR100295

ORIGINAL (Red)

Attachment No. 5

AR100296

Results of Analyses
for
I. T. Corporation
CEC Job No. 8695-47

Lab Number	Sample Description	Air Volume Liters	Acetone (mg)	Acetone (mg/m^3)	Acetone (ppm)	Methylene Chloride (mg)	Methylene Chloride (mg/m^3)	Methylene Chloride (ppm)
16298	864/28	360.0	<0.060	<0.167	<0.07	<0.014	<0.039	<0.01
16299	892/29	360.0	0.039	0.108	*0.05	0.301	0.836	*0.24
16300	858/27	360.0	<0.060	<0.167	<0.07	<0.014	<0.039	<0.01
16301	893/47	344.6	<0.060	<0.174	<0.07	<0.014	<0.041	<0.01
16302	864/48	318.4	<0.060	<0.188	<0.08	<0.014	<0.044	<0.01
16303	893/26 marked 897/33	360.0	<0.060	<0.167	<0.07	<0.014	<0.039	<0.01

	Acetone	Methylene Chloride
Analytical Method:	P&CAM 127	P&CAM 127
Limit of Detection:	0.060 mg	0.014 mg

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.

Results of Analyses
for
I. T. Corporation
CEC Job No. 8695-47

AR100297 R.N. #5 in #24

Lab Number	Sample Description	Air Volume Liters	Chloroform (mg)	Chloroform (mg/m^3)	Chloroform (ppm)	Ethylene Dichloride (mg)	Ethylene Dichloride (mg/m^3)	Ethylene Dichloride (ppm)
16298	864/28	360.0	<0.030	<0.083	<0.04	<0.012	<0.033	<0.01
16299	892/29	360.0	0.192	0.533	0.23	0.071	0.197	0.05
16300	858/27	360.0	0.065	0.181	0.08	<0.012	<0.033	<0.01
16301	893/47	344.6	<0.030	<0.087	<0.04	<0.012	<0.035	<0.01
16302	864/48	318.4	<0.030	<0.094	<0.04	<0.012	<0.038	<0.01
16303	893/26 marked 897/33	360.0	0.070	0.194	0.08	<0.012	<0.033	<0.01

	Chloroform	Ethylene Dichloride
Analytical Method:	P&CAM 127	P&CAM 127
Limit of Detection:	0.030 mg	0.012 mg

ORIGINAL (Red)

Results of Analyses
for
I. T. Corporation
CEC Job No. 8695-47

Lab Number	Sample Description	Air Volume Liters	Benzene (mg)	Benzene (mg/m³)	Benzene (ppm)	Methyl Ethyl Ketone (mg)	Methyl Ethyl Ketone (mg/m³)	Methyl Ethyl Ketone (ppm)
16298	864/28	360.0	<0.008	<0.022	<0.01	<0.016	<0.044	<0.02
16299	892/29	360.0	0.851	2.364	0.74	0.090	0.250	[illegible]
16300	858/27	360.0	0.012	0.033	[illegible]	<0.016	<0.044	<0.02
16301	893/47	344.6	<0.008	<0.023	<0.01	<0.016	<0.046	<0.02
16302	864/48	318.4	<0.008	<0.025	<0.01	<0.016	<0.050	<0.02
16303	893/26 marked 897/33	360.0	0.009	0.025	[illegible]	<0.016	<0.044	<0.02

	Benzene	Methyl Ethyl Ketone
Analytical Method:	P&CAM 127	P&CAM 127
Limit of Detection:	0.008 mg	0.016 mg

A.P.A. 3rd 298

AR100298

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.

Results of Analyses

for

I. T. Corporation

CEC Job No. 8695-47

Lab Number	Sample Description	Air Volume Liters	1,1,1-Trichloroethane (mg)	1,1,1-Trichloroethane (mg/m³)	1,1,1-Trichloroethane (ppm)	Toluene (mg)	Toluene (mg/m³)	Toluene (ppm)
16298	864/28	360.0	<0.014			<0.002	<0.006	<0.001
16299	892/29	360.0	0.092	0.256	[redacted]	0.377	1.047	[redacted]
16300	858/27	360.0	<0.014			0.008	0.022	[redacted]
16301	893/47	344.6	<0.014			<0.002	<0.006	<0.002
16302	864/48	318.4	<0.014			<0.002	<0.006	<0.002
16303	893/26 marked 897/33	360.0	<0.014			0.004	0.011	[redacted]

Analytical Method: P&CAM 127 P&CAM 127

Limit of Detection: 0.014 mg 0.002 mg

AR100299

AR100299

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.

Results of Analyses

for

I. T. Corporation

CEC Job No. 8695-47

Lab Number	Sample Description	Air Volume Liters	Xylenes (mg)	Xylenes (mg/m^3)	Xylenes (ppm)	Trichloroethylene (mg)	Trichloroethylene (mg/m^3)	Trichloroethylene (ppm)
16298	864/28	360.0	<0.002	<0.006	<0.001	<0.014	<0.039	<0.01
16299	892/29	360.0	0.276	0.767	[redacted]	0.153	0.425	[redacted]
16300	858/27	360.0	0.006	0.017	[redacted]	<0.014	<0.039	<0.01
16301	893/47	344.6	<0.002	<0.006	<0.001	<0.014	<0.041	<0.01
16302	864/48	318.4	<0.002	<0.006	<0.001	<0.014	<0.044	<0.01
16303	893/26 marked 897/33	360.0	<0.002	<0.006	<0.001	<0.014	<0.039	<0.01

Analytical Method: P&CAM 127 P&CAM 127

Limit of Detection: 0.002 mg 0.014 mg

AR100308

ORIGIN... (Red

Results of Analyses
for
I. T. Corporation
CEC Job No. 8695-47

Lab Number	Sample Description	Air Volume Liters	Styrene (mg)	Styrene (mg/m³)	Styrene (ppm)	1,1,2-Trichloroethane (mg)	1,1,2-Trichloroethane (mg/m³)	1,1,2-Trichloroethane (ppm)
16298	864/28	360.0	<0.018	<0.050	<0.01	<0.014	<0.039	<0.01
16299	892/29	360.0	0.051	0.142	[illegible]	0.073	0.203	[illegible]
16300	858/27	360.0	<0.018	<0.050	<0.01	<0.014	<0.039	<0.01
16301	893/47	344.6	<0.018	<0.052	<0.01	<0.014	<0.041	<0.01
16302	864/48	318.4	<0.018	<0.057	<0.01	<0.014	<0.044	<0.01
16303	893/26 marked 897/33	360.0	<0.018	<0.050	<0.01	<0.014	<0.039	<0.01

Analytical Method: P&CAM 127 P&CAM 127

Limit of Detection:

R.N. #5, 8/23/84 AR100301

AR100301

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.

Results of Analyses

for

I. T. Corporation

CEC Job No. 8695-47

Lab Number	Sample Description	Air Volume Liters	Total Hydrocarbons (mg)	(mg/m³)	(ppm)
16298	864/28	360.0	<0.002	<0.006	<0.001
16299	892/29	360.0	1.197	3.325	~~0.88~~
16300	858/27	360.0	0.016	0.044	~~0.01~~
16301	893/47	344.6	<0.002	<0.006	<0.001
16302	864/48	318.4	<0.002	<0.006	<0.002
16303	893/26 marked 897/33	360.0	0.011	0.031	<0.01

Analytical Method: P&CAM 127

Limit of Detection: 0.002 mg

R.N. #5 AR100302 7 of 12

AR100302

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.
Results of Analyses
for
I.T. Corporation

CEC Job No. 8768-47
600 mg Charcoal Tubes

Lab Number	Sample Description	Air Volume (liters)	Methylene Chloride (mg)	Methylene Chloride (mg/m^3)	Methylene Chloride (ppm)	Methyl Ethyl Ketone (mg)	Methyl Ethyl Ketone (mg/m^3)	Methyl Ethyl Ketone (ppm)
16939	#883/0	177.4	0.060	0.338	0.10	0.031	0.175	0.06
16940	#254/0	177.6	<0.014	<0.079	<0.02	<0.016	<0.090	<0.03
16941	#251/0	157.4	<0.014	<0.089	<0.03	<0.016	<0.103	<0.03
16946	#253/0	171.2	<0.014	<0.082	<0.02	<0.016	<0.093	<0.03
16944	#885/0	88.5	0.050	0.565	0.16	0.024	0.271	0.09
Analytical Method (NIOSH):			P&CAM 127			P&CAM 127		
Limit of Detection:			0.014 mg			0.016 mg		

Lab Number	Sample Description	Air Volume (liters)	Chloroform (mg)	Chloroform (mg/m^3)	Chloroform (ppm)	Ethylene Dichloride (mg)	Ethylene Dichloride (mg/m^3)	Ethylene Dichloride (ppm)
16939	#883/0	177.4	0.120	0.676	0.23	0.037	0.209	0.05
16940	#254/0	177.6	<0.030	<0.169	<0.07	<0.012	<0.068	<0.02
16941	#251/0	157.4	<0.030	<0.381	<0.17	<0.012	<0.076	<0.02
16946	#253/0	171.2	<0.030	<0.175	<0.08	<0.012	<0.070	<0.02
16944	#885/0	88.5	0.096	1.085	0.473	0.028	0.316	0.08
Analytical Method (NIOSH):			P&CAM 127			P&CAM 127		
Limit of Detection:			0.030 mg			0.012 mg		

A.R. #00303 & 4

AR100303

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.
Results of Analyses
for
I.T. Corporation

CEC Job No. 8768-47
600 mg Charcoal Tubes

Lab Number	Sample Description	Air Volume (liters)	Benzene (mg)	Benzene (mg/m³)	Benzene (ppm)	Trichloroethylene (mg)	Trichloroethylene (mg/m³)	Trichloroethylene (ppm)
16939	#883/0	177.4	0.353	1.990	0.62	0.085	0.479	0.09
16940	#254/0	177.6	<0.008	<0.045	<0.01	<0.014	<0.079	<0.01
16941	#251/0	157.4	<0.008	<0.051	<0.02	<0.014	<0.089	<0.02
16946	#253/0	171.2	<0.008	<0.047	<0.01	<0.014	<0.082	<0.02
16944	#885/0	88.5	0.194	2.192	0.69	0.056	0.633	0.20
Analytical Method (NIOSH):			P&CAM 127			P&CAM 127		
Limit of Detection:			0.008 mg			0.014 mg		

Lab Number	Sample Description	Air Volume (liters)	Toluene (mg)	Toluene (mg/m³)	Toluene (ppm)	Xylenes (mg)	Xylenes (mg/m³)	Xylenes (ppm)
16939	#883/0	177.4	0.228	1.285	0.34	0.216	1.218	0.28
16940	#254/0	177.6	0.002	0.011	0.002	<0.002	<0.011	<0.003
16941	#251/0	157.4	<0.002	<0.013	<0.003	<0.002	<0.013	<0.003
16946	#253/0	171.2	<0.002	<0.012	<0.003	<0.002	<0.012	<0.003
16944	#885/0	88.5	0.124	1.401	[illegible]	0.116	1.311	0.30
Analytical Method (NIOSH):			P&CAM 127			P&CAM 127		
Limit of Detection:			0.002 mg			0.002 mg		

AR100304 9 of 24
E.N. #5, 1992

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.
Results of Analyses
for
I.T. Corporation

CEC Job No. 8768-47
600 mg Charcoal Tubes

Lab Number	Sample Description	Air Volume (liters)	1,1,2-Trichloroethane (mg)	1,1,2-Trichloroethane (mg/m^3)	1,1,2-Trichloroethane (ppm)	Mineral Spirits (mg)	Mineral Spirits (mg/m^3)	Mineral Spirits (ppm)
16939	#883/0	177.4	0.056	0.316	[illegible]	0.589	3.320	[illegible]
16940	#254/0	177.6	<0.014	<0.079	<0.01	<0.080	<0.450	<0.07
16941	#251/0	157.4	<0.014	<0.089	<0.02	<0.080	<0.508	<0.08
16946	#253/0	171.2	<0.014	<0.082	<0.01	<0.080	<0.467	<0.08
16944	#885/0	88.5	0.036	0.407	[illegible]	0.317	3.582	[illegible]

Analytical Method (NIOSH): P&CAM 127 P&CAM 127
Limit of Detection: 0.014 mg 0.080 mg

AR100305 # 24
D.N. 3/10/92

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.
Results of Analyses
for
I.T. Corporation

CEC Job No. 8768-47
150 mg Charcoal Tubes

Lab Number	Sample Description	Air Volume (liters)	Methylene Chloride (mg)	Methylene Chloride (mg/m^3)	Methylene Chloride (ppm)	Methyl Ethyl Ketone (mg)	Methyl Ethyl Ketone (mg/m^3)	Methyl Ethyl Ketone (ppm)
16942	#874/0	44.25	0.015	0.339	[illegible]	0.012	0.271	[illegible]
16943	#867/0	88.5	0.018	0.203	[illegible]	0.010	0.113	[illegible]
16945	#225/0	85.5	<0.007	<0.082	<0.02	<0.008	<0.094	<0.03
16947	#252/0	88.7	<0.007	<0.079	<0.02	<0.008	<0.090	<0.03
16948	#856/0	78.4	<0.007	<0.089	<0.03	<0.008	<0.102	<0.03
Analytical Method (NIOSH):			P&CAM 127			P&CAM 127		
Limit of Detection:			0.007 mg			0.008 mg		

Lab Number	Sample Description	Air Volume (liters)	Chloroform (mg)	Chloroform (mg/m^3)	Chloroform (ppm)	Ethylene Dichloride (mg)	Ethylene Dichloride (mg/m^3)	Ethylene Dichloride (ppm)
16942	#874/0	44.25	0.048	1.085	[illegible]	0.014	0.316	[illegible]
16943	#867/0	88.5	0.041	0.463	[illegible]	0.013	0.147	[illegible]
16945	#225/0	85.5	<0.030	<0.351	<0.15	<0.006	<0.070	<0.02
16947	#252/0	88.7	<0.030	<0.338	<0.15	<0.006	<0.068	<0.02
16948	#856/0	78.4	<0.030	<0.383	<0.17	<0.006	<0.077	<0.02
Analytical Method (NIOSH):								
Limit of Detection:								

AR 400306 of 24

ORIGIN. (Red)

Clayton Environmental Consultants, Inc.
Results of Analyses
for
I.T. Corporation

CEC Job No. 8768-47
150 mg Charcoal Tubes

Lab Number	Sample Description	Air Volume (liters)	Benzene (mg)	Benzene (mg/m³)	Benzene (ppm)	Trichloroethylene (mg)	Trichloroethylene (mg/m³)	Trichloroethylene (ppm)
16942	#874/0	44.25	0.093	2.102	~~0.66~~	0.027	0.610	~~0.11~~
16943	#867/0	88.5	0.140	1.582	~~0.50~~	0.078	0.881	~~0.16~~
16945	#225/0	85.5	<0.004	<0.047	<0.01	<0.007	<0.082	<0.02
16947	#252/0	88.7	<0.004	<0.045	<0.01	<0.007	<0.079	<0.01
16948	#856/0	78.4	<0.004	<0.051	<0.02	<0.007	<0.089	<0.02
Analytical Method (NIOSH):			P&CAM 127			P&CAM 127		
Limit of Detection:			0.004 mg			0.007 mg		

Lab Number	Sample Description	Air Volume (liters)	Toluene (mg)	Toluene (mg/m³)	Toluene (ppm)	Xylenes (mg)	Xylenes (mg/m³)	Xylenes (ppm)
16942	#874/0	44.25	0.062	1.401	~~0.37~~	0.063	1.424	~~0.33~~
16943	#867/0	88.5	0.110	1.243	~~0.33~~	0.103	1.164	~~0.27~~
16945	#225/0	85.5	<0.001	<0.012	<0.003	<0.001	<0.012	<0.003
16947	#252/0	88.7	0.001	0.011	~~0.003~~	<0.001	<0.011	<0.003
16948	#856/0	78.4	<0.001	<0.013	<0.003	<0.001	<0.013	<0.003
Analytical Method (NIOSH):			P&CAM 127			P&CAM 127		
Limit of Detection:			0.001 mg			0.001 mg		

AR100307 R.V. #5, 05 12 of

ORIGINAL (Red)

AR100308
A.N. #5. Pg. 13 9

Clayton Environmental Consultants, Inc.
Results of Analyses
for
I.T. Corporation

CEC Job No. 8768-47

150 mg Charcoal Tubes

Lab Number	Sample Description	Air Volume (liters)	1,1,2-Trichloroethane (mg)	1,1,2-Trichloroethane (mg/m^3)	1,1,2-Trichloroethane (ppm)	Mineral Spirits (mg)	Mineral Spirits (mg/m^3)	Mineral Spirits (ppm)
16942	#874/0	44.25	0.024	0.542	~~0.10~~	0.175	3.955	~~0.65~~
16943	#867/0	88.5	0.033	0.373	0.07	0.268	3.028	0.50
16945	#225/0	85.5	<0.007	<0.082	<0.02	<0.040	<0.468	<0.08
16947	#252/0	88.7	<0.007	<0.079	<0.01	<0.040	<0.451	<0.07
16948	#856/0	78.4	<0.007	<0.089	<0.02	<0.040	<0.510	<0.08
Analytical Method (NIOSH):			P&CAM 127			P&CAM 127		
Limit of Detection:			0.007 mg			0.040 mg		

ORIGINAL (Red)

Clayton Environmental Consultants, Inc.

Results of Analyses

for

I. T. Corporation

CEC Job No. 8747-47

AR100309

Lab Number	Sample Description	Air Volume Liters	Acetone (mg)	Acetone (mg/m³)	Acetone (ppm)	Methylene Chloride (mg)	Methylene Chloride (mg/m³)	Methylene Chloride (ppm)
16702 10 am	#887/7	360	<0.060	<0.167	<0.07	0.064	0.178	0.05
16703 3 am	#888/8	360	<0.060	<0.167	<0.07	<0.014	<0.039	<0.01
16704 1 pm	#888/17	360	0.073	0.203	0.09	0.149	0.414	0.12
16705 3 pm	#887/22	360	<0.060	<0.167	<0.07	<0.014	<0.039	<0.01
16706	Blank	-	<0.060	-	-	<0.014	-	-

	Acetone	Methylene Chloride
Analytical Method:	P&CAM 127	P&CAM 127
Limit of Detection:	0.060 mg	0.014 mg

ORIGINAL (Red)

AR10031O
FW. #3, 1st

Results of Analyses
for
I. T. Corporation
CEC Job No. 8747-47

Lab Number	Sample Description	Air Volume Liters	Methyl Ethyl Ketone (mg)	Methyl Ethyl Ketone (mg/m^3)	Methyl Ethyl Ketone (ppm)	Ethylene dichloride (mg)	Ethylene dichloride (mg/m^3)	Ethylene dichloride (ppm)
16702	#887/7	360	<0.016	<0.044	<0.02	0.014	0.039	0.01
16703	#888/8	360	<0.016	<0.044	<0.02	<0.012	<0.033	<0.01
16704	#888/17	360	0.024	0.067	0.02	0.030	0.083	0.02
16705	#887/22	360	<0.016	<0.044	<0.02	<0.012	<0.033	<0.01
16706	Blank	-	<0.016	-	-	<0.012	-	-

Analytical Method: P&CAM 127 — P&CAM 127

Limit of Detection: 0.016 mg — 0.012 mg

ORIGINAL (Red)

...Consultants, Inc.

Results of Analyses

for

I. T. Corporation

CEC Job No. 8747-47

Lab Number	Sample Description	Air Volume Liters	Benzene (mg)	Benzene (mg/m^3)	Benzene (ppm)	P-dioxane (mg)	P-dioxane (mg/m^3)	P-dioxane (ppm)
16702	#887/7	360	0.464	1.289	0.40	<0.010	<0.028	<0.01
16703	#888/8	360	<0.008	<0.022	<0.01	<0.010	<0.028	<0.01
16704	#888/17	360	0.565	1.569	0.49	<0.010	<0.028	<0.01
16705	#887/22	360	<0.008	<0.022	<0.01	<0.010	<0.028	<0.01
16706	Blank	-	<0.008	-	-	<0.010	-	-

Analytical Method:	P&CAM 127	P&CAM 127
Limit of Detection:	0.008 mg	0.010 mg

ARI003111

ARI003114

ORIGINAL (Red)

AR100312
D.N. #5, 8/8 12/92

Results of Analyses
for
I. T. Corporation
CEC Job No. 8747-47

Lab Number	Sample Description	Air Volume Liters	1,1,2-Trichloroethane (mg)	1,1,2-Trichloroethane (mg/m³)	1,1,2-Trichloroethane (ppm)	Tetrachloroethylene (mg)	Tetrachloroethylene (mg/m³)	Tetrachloroethylene (ppm)
16702	#887/7	360	0.024	0.067	~~0.01~~	<0.016	<0.052	<0.01
16703	#888/8	360	<0.014	<0.039	<0.01	<0.016	<0.052	<0.01
16704	#888/17	360	0.078	0.217	~~0.04~~	<0.016	<0.052	<0.01
16705	#887/22	360	<0.014	<0.039	<0.01	<0.016	<0.052	<0.01
16706	Blank	-	<0.014	-	-	<0.016	-	-

	1,1,2-Trichloroethane	Tetrachloroethylene
Analytical Method:	P&CAM 127	P&CAM 127
Limit of Detection:	0.014 mg	0.016 mg

ORIGINAL (Red)

Results of Analyses

I. T. Corporation

CEC Job No. 8747-47

Lab Number	Sample Description	Air Volume Liters	Xylenes (mg)	Xylenes (mg/m³)	Xylenes (ppm)	Chloroform (mg)	Chloroform (mg/m³)	Chloroform (ppm)
16702	#887/7	360	0.165	0.458	0.11	0.033	0.092	0.04
16703	#888/8	360	<0.002	<0.006	<0.001	<0.030	<0.083	<0.04
16704	#888/17	360	0.306	0.850	0.20	0.095	0.264	0.11
16705	#887/22	360	<0.002	<0.006	<0.001	<0.030	<0.083	<0.04
16706	Blank	-	<0.002	-	-	<0.030	-	-

	Xylenes	Chloroform
Analytical Method:	P&CAM 127	P&CAM 127
Limit of Detection:	0.002 mg	0.030 mg

AR100313

AR100313

ORIGINAL (Red)

Results of Analyses
for
I. T. Corporation
CEC Job No. 8747-47

Lab Number	Sample Description	Air Volume Liters	1,1,1-Trichlorgethane (mg)	1,1,1-Trichlorgethane (mg/m³)	1,1,1-Trichlorgethane (ppm)	Carbon Tetrachloride (mg)	Carbon Tetrachloride (mg/m³)	Carbon Tetrachloride (ppm)
16702	#887/7	360	<0.014	<0.039	<0.01	<0.016	<0.044	<0.01
16703	#888/8	360	<0.014	<0.039	<0.01	<0.016	<0.044	<0.01
16704	#888/17	360	<0.014	<0.039	<0.01	<0.016	<0.044	<0.01
16705	#887/22	360	<0.014	<0.039	<0.01	<0.016	<0.044	<0.01
16706	Blank	-	<0.014	-	-	<0.016	-	-

Analytical Method: P&CAM 127 — P&CAM 127

Limit of Detection: 0.014 mg — 0.016 mg

P.N. #AR 1003142

AR100314

ORIGINAL (Red)

Results of Analyses

for

I. T. Corporation

CEC Job No. 8747-47

Lab Number	Sample Description	Air Volume Liters	Trichloroethylene (mg)	Trichloroethylene (mg/m³)	Trichloroethylene (ppm)	Toluene (mg)	Toluene (mg/m³)	Toluene (ppm)
16702	#887/7	360	0.052	0.144	~~0.03~~	0.248	0.689	~~0.18~~
16703	#888/8	360	<0.014	<0.039	<0.01	<0.002	<0.006	<0.001
16704	#888/17	360	0.114	0.317	~~0.06~~	0.397	1.103	~~0.29~~
16705	#887/22	360	<0.014	<0.039	<0.01	<0.002	<0.006	<0.001
16706	Blank	-	<0.014	-	-	<0.002	-	-

Analytical Method:	P&CAM 127	P&CAM 127
Limit of Detection:	0.014 mg	0.002 mg

AR100315

ORIGINAL (Red)

Results of Analyses

for

I. T. Corporation

CEC Job No. 8747-47

Lab Number	Sample Description	Air Volume Liters	Styrene (mg)	Styrene (mg/m³)	Styrene (ppm)	Mineral Spirits (mg)	Mineral Spirits (mg/m³)	Mineral Spirits (ppm)
16702	#887/7	360	<0.018			0.217	0.603	0.10
16703	#888/8	360	<0.018			<0.080	<0.222	<0.04
16704	#888/17	360	<0.018			0.668	1.856	0.31
16705	#887/22	360	<0.018			<0.080	<0.222	<0.04
16706	Blank	-	<0.018			<0.080	-	-

	Styrene	Mineral Spirits
Analytical Method:	P&CAM 127	P&CAM 127
Limit of Detection:	0.018 mg	0.080 mg

AR100316

ATTACHMENT No.
ORIGINAL
(Red)

Clayton Environmental Consultants, Inc.
25711 Southfield Road, Southfield, Michigan 48075, Telephone 313 424-8860

November 16, 1983

Mr. Phil Staats
IT CORPORATION
GSA Raritan Center
Building 209; Bay F
Edison NJ 08837

CEC Job No. 8695-47

Dear Mr. Staats:

The samples which you submitted to us on November 7, 1983, have been analyzed by gas chromatography/mass spectrometry (GC/MS) as requested. I have enclosed copies of the total ion current chromatograms (TIC) and mass spectra for the compounds identified.

Quantitation was performed using an external mixture of chloroform, toluene, 1,2,3-trimethylbenzene, and dodecane. This mixture gives a good combination of retention times and response factors for external standard quantification.

The results have been blank corrected to eliminate compounds not actually present in the field samples.

It is a pleasure to be of assistance to you. Please contact us if you have any questions concerning this report.

Sincerely,

Robert Lieckfield Jr., C.I.H.
Manager, Laboratory Services

RL:li

cc: Mark Fenner

AR100317

IT CORPORATION
CEC Job No. 8695-47

ORIGIN
(Red)

Lab Number: 293588
Sample Description: J/l Station #1, Front section: Tenax
Air volume: 6.16 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
18	Sulfue dioxide	0.3	0.02	50
101	Benzene	2.	0.1	400
182	Toluene	3.	0.2	600
254	Ethylbenzene	1.	0.04	200
261	Xylene	2.	0.06	300
277	Styrene)	2.	0.07	300
280	Xylene)			
302	Methyl ethyl benzene	< 0.2	< 0.007	< 40
324	Phenyl acetaldehyde	< 0.2	< 0.007	< 40
332	Methyl ethyl benzene	1.	0.03	200
351	Benzonitrile	2.	0.06	300
355	(C_9H_{12} Alkylbenzene	1.	0.04	200
	(Methyl styrene			
376	$C_{10}H_{14}$ Aklylbenzene	1.	0.03	200
388	Indene	< 0.2	< 0.007	< 40
416	($C_{10}H_{14}$ Alkylbenzene	0.4	0.01	60
	(Dimethyl or Ethylstyrene			
457	Methylindene	0.4	0.01	60
477	Naphthalene	2.	0.08	400
542	Methylnaphthalene	0.6	0.02	100
550	Methylnaphthalene	0.4	0.01	70
583	Acenaphthene or Biphenyl	0.4	0.01	70
593	Dimethyl naphthalene	0.2	0.006	40
603	Dimethyl naphthalene	0.5	0.01	80
616	Acenaphthylene	0.4	0.01	70
631	$C_{13}H_{12}$(allyl naphthalene and/or methyl biphenyl)	< 0.2	< 0.005	< 30
635	$C_{13}H_{12}$(Allyl naphthalene and/or Methyl biphenyl)	< 0.2	< 0.005	< 20
644	Butylated hydroxy toluene	0.3	0.005	40
651	$C_{13}H_{14}$ Alkylnaphthalene	< 0.2	< 0.005	< 40
675	Fluorene	< 0.2	< 0.005	< 40
723	$C_{14}H_{28}$ Hydrocarbon	0.3	0.006	50
736	Trimethyl phenyl indane	0.3	0.005	50
762	Anthracene and/or phenanthrene	0.5	0.01	90
872	Fluoranthene	< 0.2	< 0.004	< 40
894	Pyrene	< 0.2	< 0.004	< 40
1001	Chrysene and/or benz(a) anthracene	< 0.2	< 0.003	< 40

Results have been blank corrected.

AR100318

Att. No. 6

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293588
Sample Description: J/1 Station #1, Back section: Chromosorb 102
Air volume: 6.16 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m 3)
105	Benzene	2.	0.08	200

Results have been blank corrected.

$\bar{x}$ = .67 ppm
σ = .56 ppm

AR100319
A.N. #6

IT CORPORATION
Job No. 8695-47

ORIGINAL
(Red)

Lab Number: 293589
Sample Description: A/5 Station #1, Front Section: Tenax
Air Volume: 11.66 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
103	Benzene	3.	0.08	300
180	Toluene	5.	0.1	400
250	Ethylbenzene	3.	0.06	200
254	Xylene	3.	0.06	200
272	Styrene / Xylene	3.	0.07	300
296	Methyl ethyl benzene	0.5	0.008	40
316	Phenyl acetaldehyde	0.4	0.006	30
324	C_9H_{12} alkylbenzene	3.	0.05	200
337	Methyl styrene / Benzonitrile	0.6	0.01	50
344	Phenol / C_9H_{12} alkylbenzene	5.	0.1	400
348	Metnyl styrene	0.9	0.02	80
368	$C_{10}H_{14}$ alkylbenzene	4.	0.06	400
380	Indene	0.5	0.009	40
388	$C_{10}H_{14}$ alkybenzene	0.3	0.004	20
407	Dimethyl or Ethylstyrene / $C_{10}H_{14}$ alkylbenzene	1.	0.02	90
448	Methyl indene	0.5	0.007	40
453	Methyl indene / $C_{11}H_{16}$ alkylbenzene	0.6	0.008	50
475	Naphthalene	5.	0.08	400
537	Methylnaphthalene	2.	0.03	200
548	Methylnaphthalene	1.	0.01	80
583	Acenaphthene or Biphenyl	1.	0.02	100
595	Dimethylnaphthalene	0.5	0.006	40
605	Dimethylnaphthalene	1.	0.01	90
618	Acenaphthylene	1.	0.01	80
633	$C_{13}H_{12}$(allylnaphthalene or methyl biphenyl)	0.3	0.004	30
638	$C_{13}H_{12}$(allynaphthalene or methyl biphenyl)	0.2	0.003	20
655	$C_{13}H_{14}$ alkylnaphthalene	< 0.2	< 0.003	< 20
670	$C_{13}H_{14}$ aklylnaphthalene	< 0.2	< 0.003	< 20
681	Fluorene	0.2	0.003	20
699	$C_{14}H_{14}$ alkylnaphthalene	0.2	0.002	20
725	Hydrocarbon	< 0.2	< 0.002	< 20
767	Anthracene and/or Phenanthrene	0.9	0.01	80
815	Methyl anthracene and/or methyl phenanthrene	0.2	0.002	20
839	Palmitic acid	1.0	0.008	80
876	Fluoranthene	0.2	0.002	20
894	Pyrene	< 0.2	< 0.002	< 20
929	Methyl fluoranthene and/or methyl pyrene	< 0.2	< 0.002	< 20

Results have been blank corrected.

ORIGINAL
(Red)

IT CORPORATION
Job No. 8695-47

Lab Number: 293589
Sample Description: A/5 Station #1, Back Section: Chromosorb 102
Air Volume: 11.66 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
37	C_5H_8 hydrocarbon	0.3	0.009	20
103	Benzene	2.	0.06	200
178	Toluene	0.9	0.02	80

Results have been blank corrected.

$\Sigma = 1.012$

AR100321

ORIGINAL
(Red)

IT CORPORATION
Job No. 8695-47

Lab Number: 293590 ← BACKGROUND
Sample Description: F/4 Station #3, Front section: Tenax
Air Volume: 4.36 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
95	Benzene	< 0.2	< 0.02	< 50
684	Possible hydrocarbon	< 0.2	< 0.03	< 50
701	Unknown	< 0.2	< 0.03	< 50
723	Hydrocarbon	< 0.2	< 0.03	< 50

Results have been blank corrected.

ORIGINAL (Red)

IT CORPORATION
Job No. 8695-47

Lab Number: 293590
Sample Description: F/4 Station #3, Back section: Chromosorb 102
Air Volume: 4.36 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
127	C_8H_{18} hydrocarbon	< 0.2	< 0.01	< 50
183	Toluene	0.3	0.02	70

Results have been blank corrected.

AR100323

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293591 ← BACKGROUND
Sample Description: C/7 Station #3, Front section: Tenax
Air Volume: 10.71 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
103	Benzene	< 0.2	< 0.006	< 20
400	C_9H_{12} alkylbenzene	< 0.2	< 0.004	< 20
718	Unknown	0.3	0.003	30
740	Hydrocarbon	< 0.2	< 0.002	< 20
749	Unknown	< 0.2	< 0.002	< 20

Results have been blank corrected.

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293591 ← BACKGROUND
Sample Description: C/7 Station #3, Back section: Chromosorb 102
Air Volume: 10.71 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
34	Trichlorofluoromethane	0.2	0.004	20
112	C_7H_{16} hydrocarbon	<0.2	<0.005	<20
118	C_7H_{16} hydrocarbon	<0.2	<0.005	<20
125	C_8H_{18} hydrocarbon	<0.2	<0.004	<20
135	C_7H_{16} hydrocarbon	<0.2	<0.005	<20
260	Xylene	0.2	0.005	20

Results have been blank corrected.

ORIGINAL
(Red)

Lab Number: 293592
Sample Description: R/8-1 Station #4, Front section: Tenax
Air Volume: Unknown

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
735	Trimethylphenyl indane	0.2	*	*

* No concentrations in ppm or micrograms/m^3 were calculated due to questionable air volumes; a sample mislabeling occured in the field.

Results have been blank corrected.

#6

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293592
Sample Description: R/8-1 Station #4, Back section: Chromosorb 102
Air Volume: Unknown

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
180	Toluene	0.2	*	*

* No concentrations in ppm or micrograms/m^3 were calculated due to questionable air volumes; a sample mislabeling occured in the field.

Results have been blank corrected.

#6

ORIGINAL
(Red)

Lab Number: 293593
Sample Description: R/8-2 Station #4, Front section: Tenax
Air Volume: Unknown

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
665	Butylated hydroxy toluene	< 0.2	*	*
747	Hydrocarbon	< 0.2	*	*
762	Trimethyl phenyl indane	0.3	*	*

* No concentrations in ppm or micrograms/m^3 were calculated due to questionable air volumes: a sample mislabeling occured in the field.

Results have been blank corrected.

#6

ORIGINAL
(Red)

Lab Number: 293593
Sample Description: R/8-2 Station #4, Back section: Chromosorb 102
Air Volume: Unknown

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
178	Toluene	< 0.2	*	*

*No concentration in ppm or micrograms/m^3 were calculated due to questionable air volumes; a sample mislabeling occured in the field.

Results have been blank corrected.

AR 10032BA

IT CORPORATION
CEC Job No. 8695-47

ORIGINAL
(Red)

Lab Number: 293594
Sample Description: K/18, Front section: Tenax
Air volume: 10.33 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
110	benzene	6.	0.2	600
137	C_7H_{16} hydrocarbon	0.4	0.01	40
185	Toluene	6.	0.2	600
209	C_8H_{18} hydrocarbon	0.4	0.009	40
254	Ethylbenzene	4.	0.08	300
260	Xylene	4.	0.08	400
277	Styrene / Xylene	4.	0.08	300
299	Methyl ethyl benzene	0.7	0.01	70
320	Phenylacetaldehyde	0.6	0.01	60
328	Acetophenone	3.	0.05	300
341	Methyl Styrene	0.3	0.005	30
349	Benzonitrile / Phenol / C_9H_{12} Alkybenzene	6.	0.1	600
373	$C_{10}H_{14}$ Alkylbenzene	3.	0.06	300
384	Indene	0.9	0.02	80
394	$C_{10}H_{14}$ Alkylbenzene	<0.2	<0.004	<20
415	Dimethylstyrene	1.	0.02	100
453	Methyl indene / Ethyl styrene	1.	0.02	100
457	Methyl Indene / $C_{11}H_{16}$ Alkylbenzene	1.	0.02	100
477	Naphthalene	5.	0.09	400
498	$C_{11}H_{14}$ Hydrocarbon / $C_{12}H_{18}$ Alkylbenzene	0.6	0.01	60
500	Benzotniazole	0.5	0.009	50
543	Methyl naptnthalene	3.	0.01	300
552	Methyl naphthalene	2.	0.04	200
588	Biphenyl	2.	0.03	200
602	Dimethylnaphthalene	1.	0.01	100
612	Dimethylnaphthalene	2.	0.03	200
614	Acenaphthene	0.6	0.009	60
624	Acenaphthylene	1.	0.02	100
642	$C_{13}H_{12}$(Allylnaphthalene or methylbiphenyl)	1.	0.01	90
647	$C_{13}H_{12}$(Allylnaphthalene or methylbiphenyl)	0.8	0.01	80
666	$C_{13}H_{14}$ Alkylnaphthalene	0.8	0.01	80
674	$C_{13}H_{14}$ Alkylnaphthalene	0.5	0.006	40
683	$C_{13}H_{14}$ Alkylnaphthalene	0.6	0.008	50
692	Fluorene	0.7	0.01	70
712	Dimethylbiphenyl	0.7	0.009	70
722	Unknown	0.3	0.004	30
740	Possible Hydrocarbon	0.4	0.005	40
743	Possible $C_{17}H_{18}$	0.5	0.005	40
764	Fluorenone	0.4	0.005	30
770	Dibenzothiophene	0.4	0.006	40
784	Anthracene and/or Phenanthrene	1.	0.02	100

Results have been blank corrected.

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293594
Sample Description: K/18, Back section: Chromosorb 102
Air volume: 10.33 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
28	Pentane	0.6	0.02	60
34	C_5H_8 Hydrocarbon	8.	0.3	700
83	Cyclohexane	2.	0.07	200
104	Benzene	40	[illegible]	4000
123	Hydrocarbon (possible C_8H_{18})	2.	0.03	200
140	C_8H_{16} Hydrocarbon	1.	0.02	90
146	C_7H_{14} Hydrocarbon	0.9	0.02	90
181	Toluene	3.	0.07	300
188	C_8H_{16} Hydrocarbon	1.	0.02	90

Results have been blank corrected.

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293598
Sample Description: J/22, Front section: Tenax
Air volume: 4.99 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
103	Benzene	6.	0.4	1,000
182	Toluene	5.	0.3	1,000
253	Ethyl benzene	2.	0.09	400
261	Xylene	3.	0.1	500
276	Styrene / Xylene	2.	0.1	400
326	Acetophenone	1.	0.06	300
345	Benzonitrile	2.	0.08	300
349	C_9H_{12} alkylbenzene	1.	0.07	300
352	Methyl styrene	0.8	0.03	200
368	C_9H_{12} alkylbenzene	0.6	0.03	100
370	$C_{10}H_{14}$ alkylbenzene	1.	0.04	200
377	Methyl styrene Hydrocarbon	0.7	0.03	100
390	$C_{10}H_{14}$ alkylbenzene	0.9	0.03	200
413	Ethyl styrene	0.6	0.02	100
451	Methylindene	0.4	0.02	80
455	Methylindene	0.6	0.02	100
476	Naphthalene	3.	0.1	600
540	Methyl naphthalene	1.	0.05	300
549	Methyl naphthalene	0.8	0.03	200
586	Biphenyl	0.9	0.03	200
599	Dimethyl naphthalene	0.4	0.01	80
610	Dimethyl naphthalene	0.9	0.03	200
623	Acenaphthylene	0.3	0.01	60
641	$C_{13}H_{12}$ (allylnaphthalene or methyl biphenyl)	0.4	0.01	80
645	$C_{13}H_{12}$ (allylnaphthalene or methyl biphenyl)	0.4	0.01	80
664	$C_{13}H_{14}$ alkylnaphthalene	0.3	0.01	60
781	Anthracene and/or phenanthrene	0.8	0.02	200
859	$C_{16}H_{12}$	0.2	0.006	50
996	Unknown	0.5	0.009	90
1017	Benz(a)anthracene and/or chrysene	<0.2	<0.004	<40

Results have been blank corrected.

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293598
Sample Description: J/22, Back section: Chromosorb 102
Air volume: 4.99 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
37	C_5H_8 hydrocarbon	5.	0.4	1,000
106	Benzene	8.	0.5	2,000
122	C_8H_{18} hydrocarbon	0.6	0.3	100
185	Acetic Acid	8.	0.6	2,000
373	Hydrocarbon (possible $C_{10}H_{22}$)	0.5	0.02	100
386	Hydrocarbon (possible $C_{10}H_{22}$)	0.5	0.02	100

Results have been blank corrected.

ORIGINAL
(Red)

IT CORPORATION
TEC Job No. 8695-47

Lab Number: 293595 ← BACKGROUND
Sample Description: C-19, Front section: Tenax
Air volume: 9.16 liters

No significant compounds after blank correcting.

ORIGINAL
(Red)

IT CORPORATION
CLC Job No. 8695-47

Lab Number: 293595
Sample Description: C-19, Back section: Chromosorb 102
Air Volume: 9.16 liters

No significant compounds after blank correcting.

IT CORPORATION
CEC Job No. 8695-47

ORIGINAL
(Red)

Lab Number: 293599 ← background
Sample Description: F/23, Front section: Tenax
Air volume: 3.59 liters

No significant compounds after blank correcting.

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293599
Sample Description: F/23, Back section: Chromosorb 102
Air volume: 3.59 liters

No significant compounds after blank correcting.

IT CORPORATION
CEC Job No. 8695-47

ORIGINAL
(Red)

Lab Number: 293596
Sample Description: R/20, Front section: Tenax
Air volume: 9.38 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
104	Benzene	2.	0.06	200
179	Toluene	1.	0.03	100
247	Ethylbenzene	0.5	0.01	50
253	Xylene	0.4	0.01	40
271	Styrene	3.	0.06	300
319	Acetopnenone	1.	0.03	100
340	Phenol	1.	0.03	100
342	Methylstyrene	2.	0.04	200
403	Ethylstyrene	3.	0.06	300
407	Ethylstyrene	1.	0.03	100
421	Methylindene	2.	0.04	200
427	Methylindene	0.8	0.02	80
451	$C_{10}H_{14}$ Alkylbenzene	0.6	0.01	60
465	C_9H_8O(Benzofuran or Vinyl benzaldehyde)	2.	0.03	200
473	Dimethylindene	0.7	0.01	80
526	Possible Phenylbutenone	0.9	0.02	100
739	Trimethyl phenyl indane	0.4	0.004	40

Results have been blank corrected.

ORIGINAL
(Red)

IT CORPORATION
EC Job No. 8695-47

ab Number: 293596
ample Description: R/20, Back section: Chromosorb 102
ir volume: 9.38 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
102	Benzene	5.	0.2	600
184	Acetic Acid	5.	0.2	500

Results have been blank corrected.

AR100336

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293600
Sample Description: E/24, Front section: Tenax
Air volume: 13.55 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
101	Benzene	< 0.2	<0.005	<10

Results have been blank corrected.

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293600
Sample Description: E/24, Back section: Chromosorb 102
Air volume: 13.55 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m3)
41	Methylene Chloride	4.	0.08	300

Results have been blank corrected.

IT CORPORATION
CEC Job No. 8695-47

ORIGINAL
(Red)

Sample Description: Field Blank, Front section: Tenax

Spectrum Number	Compound	(micrograms)
40	Methylene Chloride	0.2
64	Hexane	< 0.2
143	Acetic Acid	< 0.2
178	Toluene	< 0.2
321	C_9H_{12} alkylbenzene	< 0.2
344	Trimethyl Benzene	0.2
365	Hydrocarbon	< 0.2
372	Hydrocarbon	0.2
384	Hydrocarbon	0.2
391	Hydrocarbon	< 0.2
652	Butylated hydroxy toluene	0.6
676	Di-tert butyl ethyl phenol	< 0.2
738	possible $C_{17}H_{18}$	0.2
748	Trimethyl phenyl indane	0.5

Results have been blank corrected.

IT CORPORATION
CEC Job No. 8695-47

ORIGINAL
(Red)

Sample Description: Field Blank, Back section, Chromosorb 102

Spectrum Number	Compound	(micrograms)
47	Methylene chloride	1.
71	Hexane	2.
104	Benzene / Carbon tetrachloride	0.2
178	Toluene	0.3
187	Acetic acid	0.9
256	Xylene	< 0.2
272	Styrene	0.2
323	Benzaldehyde	0.5
346	Trimethyl benzene	0.2
408	Ethyl styrene	0.3
415	Methyl benzoate	0.4
459	$C_{10}H_{14}$ alkylbenzene	0.3
999	Unknown	2.

Results have been blank corrected.

IT CORPORATION
TEC Job No. 8695-47

ORIGINAL
(Red)

Job Number: 293597
Sample Description: A/21, Front section: Tenax
Air volume: 41.49 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
100	Benzene	0.3	0.003	8.
177	Toluene	0.5	0.003	10.
250	Ethylbenzene	< 0.2	< 0.001	< 5.
255	Xylene	< 0.2	< 0.001	< 5.
271	Styrene	< 0.2	< 0.001	< 5.
467	Naphthalene	< 0.2	< 0.0009	< 5.

Results have been blank corrected.

ORIGINAL
(Red)

IT CORPORATION
TEC Job No. 8695-47

Lab Number: 293597
Sample Description: A/21, Back section: Chromosorb 102
Air volume: 41.49 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
168	Toluene	0.9	0.006	20
302	Hydrocarbon (possible C_8H_{18})	0.5	0.003	10
361	Hydrocarbon (possible C_9H_{20})	0.9	0.004	20

Results have been blank corrected.

AR100344

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293601
Sample Description: I/25, Front section: Tenax
Air Volume: 4.11 liters

Spectrum Number	Compound	(micrograms)	(ppm)	(micrograms/m^3)
29	Trichlorofluoromethane	<0.2	<0.009	<50
103	Benzene	0.4	0.03	90
180	Toluene	0.3	0.02	70
253	Ethyl benzene	<0.2	<0.01	<50
259	Xylene	<0.2	<0.01	<50

Results have been blank corrected.

#6

ORIGINAL
(Red)

IT CORPORATION
CEC Job No. 8695-47

Lab Number: 293601
Sample Description: I/25, Back section: Chromosorb 102
Air volume: 4.11 liters

No significant compounds after blank correcting.

FF6

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

ORIGINAL (Red)

Results of Analyses
for
IT Corporation

Job No. 19859-17

Lab Number: 296310
Sample Description: R/11 Tenax Front Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PPM

No data for front section

Lab Number: 296310
Sample Description: R/11 Chromosorb 102 Back Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PPM
128	Benzene	<0.2	<20	<0.(

AR100347

#6

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

ORIGINAL
(Red)

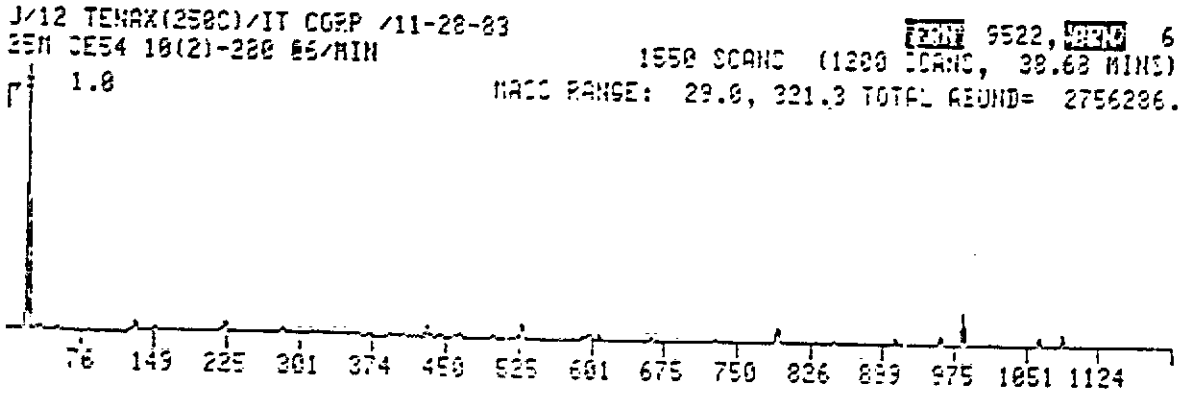
Results of Analyses
for
IT Corporation

Job No. 19859-17

Lab Number: 296311
Sample Description: J/12 Tenax Front Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PPM
130	Benzene	<0.2	<40	<0.01
221	Acetic Acid	0.2	30	0.01
430	Unknown	0.2	40	0.00
528	Nonanal	0.3	50	0.00
792	Unsaturated Hydrocarbons	0.3	50	0.00
961	Fatty Acid	0.3	50	0.00
984	Unknown	0.5	90	0.01
1064	Fatty Acid	0.3	60	0.00
1087	Unknown	0.2	40	0.00

Results have been blank corrected.



AR100348 #6

ORIGINAL
(Red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for
IT Corporation

Job No. 19859-17

Lab Number: 296311
Sample Description: J/12 Chromosorb 102 Back Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PPI

No significant compounds detected

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

ORIGINAL (Red)

Results of Analyses
for
IT Corporation

Job No. 19859-17

Lab Number: 296312

Sample Description: F/13 Tenax Front Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PPM
128	Benzene	20	4,000	1
226	Toluene	20	4,000	1
313	Ethylbenzene	4	900	0.2
321	Xylene	5	1,000	0.2
341	Styrene Xylene	5	1,000	0.2
368	C_9H_{12} Alkylbenzene	0.7	100	0.03
393	Phenylacetaldehyde	0.7	200	0.0
403	C_9H_{12} Alkylbenzene	2	500	0.1
426	Benzonitrile	8	2,000	[redacted]
430	C_9H_{12} Alkylbenzene			
458	$C_{10}H_{14}$ Alkylbenzene	4	800	0.1
473	Indene	1	300	0.06
510	Dimethylstyrene	0.7	100	0.03
523	Tolunitrile	0.6	100	0.03
564	Methylindene $C_{11}H_{16}$ Alkylbenzene	3	600	0.1
589	Naphthalene	7	1,000	0.3
593	Benzothiophene	0.9	200	0.03
670	Methylnaphthalene	3	700	0.1
681	Methylnaphthalene	3	600	0.09
728	Biphenyl	2	300	0.05
745	Dimethylnaphthalene	0.8	200	0.03
757	Dimethylnaphthalene	2	300	0.05
775	Acenaphthylene	0.7	100	0.02
797	Methylbiphenyl	0.8	200	0.0
802	Methylbiphenyl	0.6	100	[redacted]
826	$C_{13}H_{14}$ Alkylnaphthalene	0.5	100	0.02
858	Fluorene	0.7	10	0.02

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

ORIGINAL (Red)

Results of Analyses
for
IT Corporation

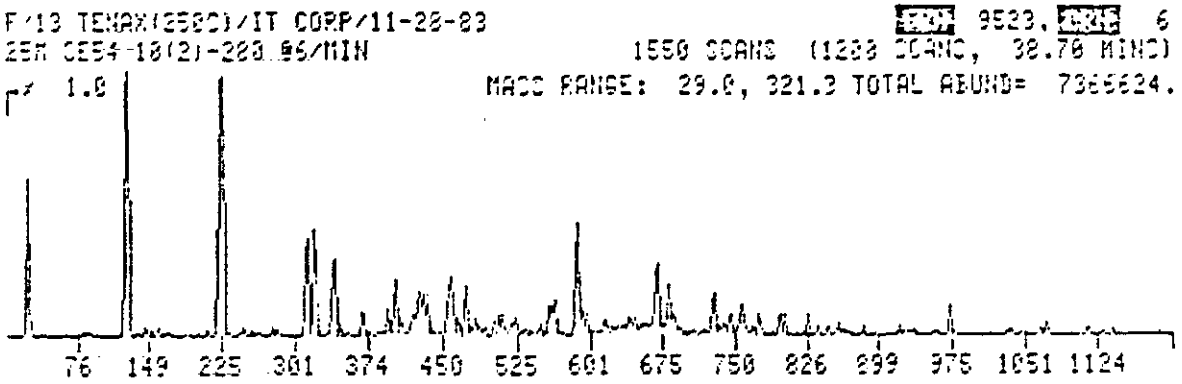
Job No. 19859-17

Lab Number: 296312

Sample Description: F13 Tenax Front Section (cont.)

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PPM
974	Anthracene &/or Phenanthrene	1	300	0.04
1072	$C_{16}H_{12}$ (probable Dibenzoheptafulvene)	0.6	100	0.02
1115	Fluoranthene	0.3	60	0.007
1140	Pyrene	0.3	70	0.008

Results have been blank corrected.



AR100351

#6

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

ORIGINAL (Red)

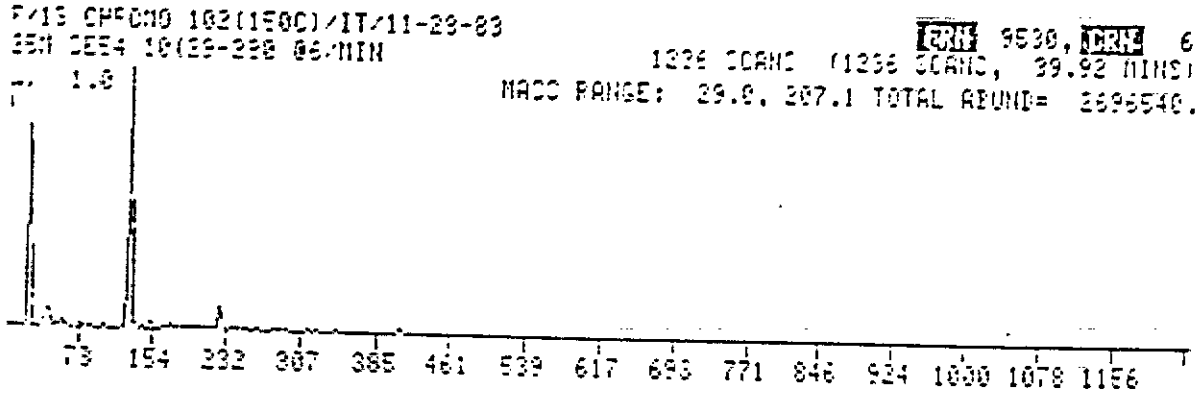
Results of Analyses
for
IT Corporation

Job No. 19859-17

Lab Number: 296312
Sample Description: F/13 Chromosorb 102 Back Section

TRUM ER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PP
46	C_5H_8 Hydrocarbon C_5H_{10} Hydrocarbon	0.3	60	0.
51	Benzene	4	800	0.

sults have been blank corrected.



AR100352

#6

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

ORIGINAL (Red)

Results of Analyses
for
IT Corporation

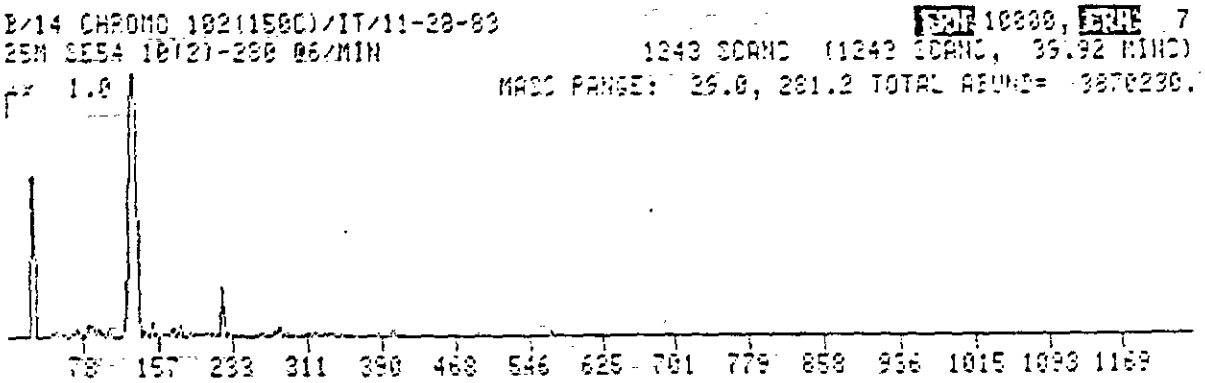
Job No. 19859-17

Lab Number: 296313

Sample Description: B/14 Chromosorb 102 Back Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PPM
31	Benzene	20	2,000	0.6
22	Toluene	0.8	90	0.02

Results have been blank corrected.



AR100353 #6

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

ORIGINAL (Red)

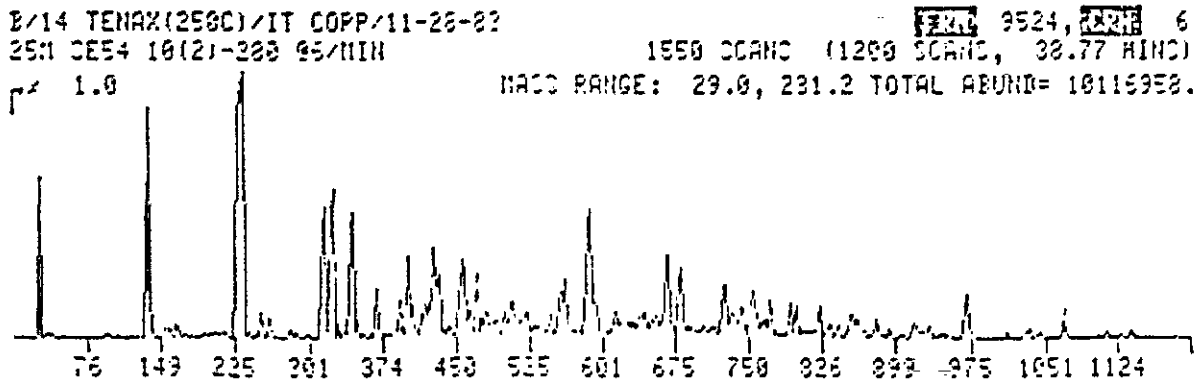
Results of Analyses
for
IT Corporation

Job No. 19859-17

Lab Number: 296313 continued
Sample Description: B/14 Tenax Front Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PPM
668	Methyl Naphthalene	7	800	0.1
690	Methyl Naphthalene	3	400	0.06
725	Biphenyl	3	400	0.06
734	Ethylnaphthalene	1	200	0.03
742	Dimethylnaphthalene	1	200	0.03
755	Dimethylnaphthalene	3	300	0.05
772	Acenaphthylene	1	100	0.02
794	Methyl Biphenyl	1	200	0.02
799	Methyl Biphenyl	1	100	0.02
823	$C_{13}H_{14}$ Alkylnaphthalene	1	100	[redacted]
855	Fluorene	2	200	0.03
871	Anthracene and/or Fluoranthene	2	300	0.04
969	$C_{16}H_{12}$ (probable Dibenzoheptafulene	0.9	100	0.01

Results have been blank corrected.



AR100354

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

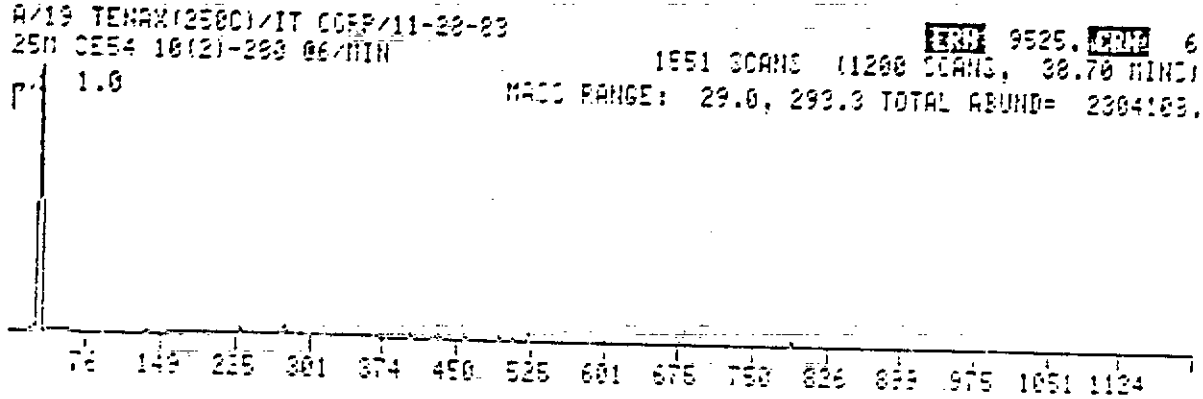
ORIGINAL (Red)

Results of Analyses
for
IT Corporation
Job No. 19859-17

Lab Number: 296314
Sample Description: A/19 Tenax Front Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PPM
274	Acetic Acid	0.3	20	0.008
523	Nonanal	<0.2	<20	<0.003
789	Probable Hydrocarbon	<0.2	<20	<0.002

Results have been blank corrected.



0

AR100355 #6

ORIGINAL
(Red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for

IT Corporation

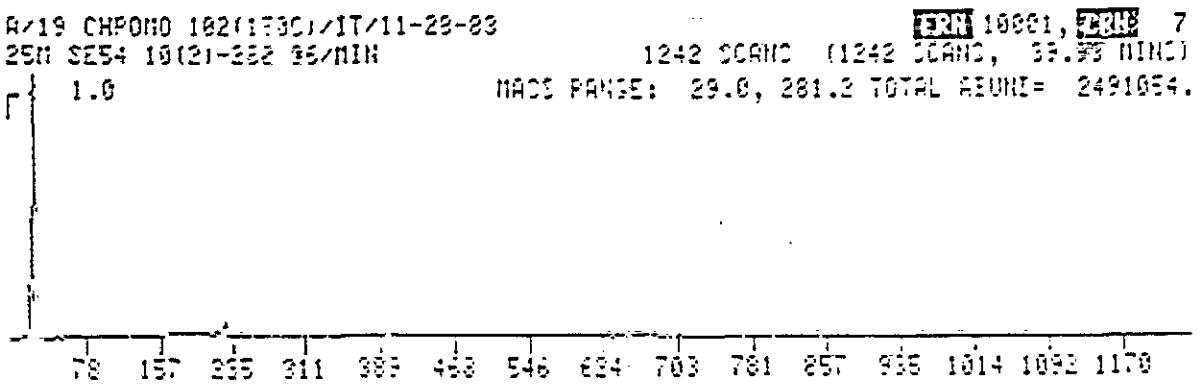
Job No. 19859-17

Lab Number: 296314

Sample Description: A/19 Chromosorb 102 Back Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3	PPM
227	Acetic Acid	0.3	20	0.008

Results have been blank corrected.



AR100356

#6

ORIGINAL
(Red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for
IT Corporation

CEC Job No. 19842-17

Lab Number: 296140
Sample Description: A/1 Front, Tenax

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M3	P
27	Sulfur Dioxide	0.2	20	0.
134	Benzene	4.	400	0.
234	Toluene	6.	700	0.
320	Ethylbenzene	1.	100	0.
329	Xylene	2.	200	0.
349	Styrene } Xylene	1.	200	0.
377	C_9H_{12} Alkylbenzene	0.2	20	0.
404	Phenylacetaldehyde	0.2	20	0.
413	C_9H_{12} Alkylbenzene	0.6	70	0.
417	C_9H_{12} Alkylbenzene	0.2	20	0.
438	Benzonitrile } Phenol	1.	100	0.
441	C_9H_{12} Alkylbenzene } Methylstyrene	0.6	70	0.
444	Methylstyrene	0.3	30	0.0
465	C_9H_{12} Alkylbenzene } $C_{10}H_{14}$ Alkylbenzene	0.4	40	0.0
468	$C_{10}H_{14}$ Alkylbenzene	0.6	60	0.0
483	Indene	0.3	30	0.0
536	C_8H_7N (probable Tolunitrile)	0.2	30	0.0
569	Methylindene } Dimethylstyrene	0.3	30	0.0
575	Methylindene } $C_{11}H_{16}$ Alkylbenzene	0.3	30	0.0
603	Naphthalene	3.	300	0.0
606	Probable Benzothiophene	0.4	40	0.0

ORIGINAL
(Red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for

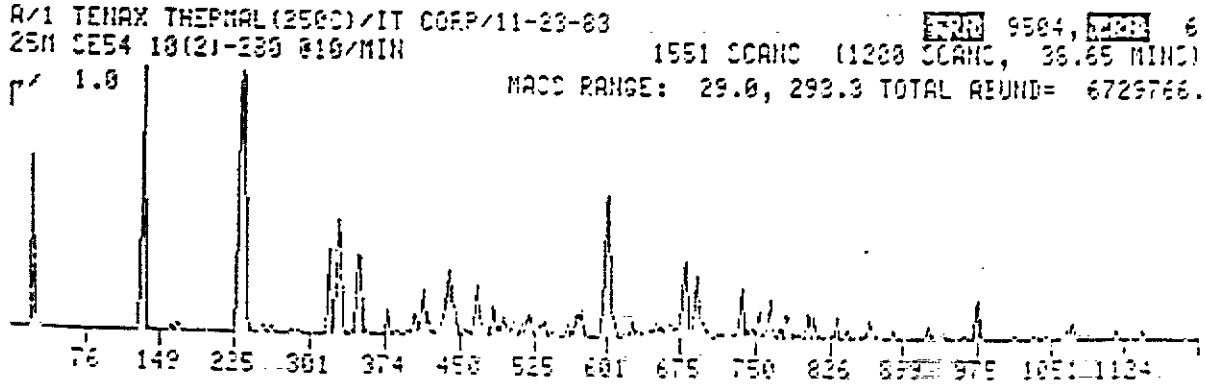
IT Corporation

CEC Jcb No. 19842-17

Lab Number: 296140 continued

Sample Description: A/1 Front, Tenax

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M3	P
680	Methylnaphthalene	1.	100	0
692	Methylnaphthalene	0.7	80	0.
737	Biphenyl	0.6	60	0.
754	Dimethylnaphthalene	0.2	30	0.
766	Dimethylnaphthalene	0.5	50	0.
781	Acenaphthylene	0.3	30	0.
803	Methylbiphenyl	0.2	30	0.
809	Methylbiphenyl	0.2	20	0.
833	$C_{13}H_{14}$ Alkylnaphthalene	0.2	20	0.
865	Fluorene	0.2	20	0.
975	Anthracene and or Phenanthrene	0.5	50	0.
1072	$C_{16}H_{12}$ (possible Dibenzoheptafulrene)	0.2	30	0.



AR100358

ORIGINAL
(Red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for

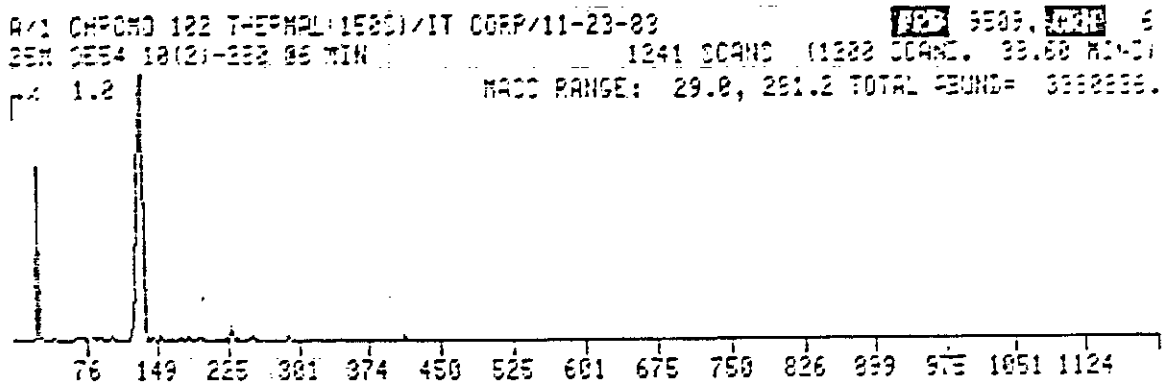
IT Corporation

CEC Job No. 19842-17

Lab Number: 296140

Sample Description: A/1 Back, Chromosorb 102

CTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M3	PP
101	Cyclohexane	<0.1	<10	<0.
133	Benzene	10	1000	0.
137	Thiophene	0.1	20	0.
227	Toluene	0.2	20	0.
251	Acetic Acid	0.1	10	0.
410	Benzaldehyde	<0.1	<10	<0.



AR100359 #6

ORIGINAL
(Red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for

IT Corporation

CEC Job No. 19842-17

Lab Number: 296141

Sample Description: E/4 Front, Tenax

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M3	PP
32	Sulfur Dioxide	0.2	40	0.
139	Benzene	5.	1000	0.
232	Toluene	4.	900	0.
317	Ethylbenzene	0.5	100	0.(
325	Xylene	0.7	200	0.(
345	Styrene	0.6	200	0.(
375	C_9H_{12} Alkylbenzene	<0.1	<20	0
409	Acetophenone	0.3	80	.0
431	Benzonitrile	0.5	100	0.0
435	C_9H_{12} Alkylbenzene	0.3	70	0.0
461	$C_{10}H_{14}$ Alkylbenzene	0.3	70	0.0
477	Indene	0.1	30	0.0
492	C_9H_{12} Alkylbenzene	0.2	50	0.00
512	Ethylstyrene	0.1	30	0.00
528	C_8H_7N (probable Tolunitrile)	<0.1	<20	0.00
564	Dimethylstyrene } Methylindene	0.1	30	0.00
569	Methylindene } $C_{11}H_{16}$ Alkylbenzene	0.1	40	0.00
594	Naphthalene	2.	400	0.07
599	Probable Benzothiophene	0.3	70	0.01
602	$C_{11}H_{14}$ (possible Dimethylindan	0.3	80	0.01
687	Methylnaphthalene Hydrocarbon			
703	Benzoic Acid Hydrocarbon			
762	Dimethylnaphthalene Methylbenzoic Acid	20.	5000	0.9

AR100360

ORIGINAL

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for

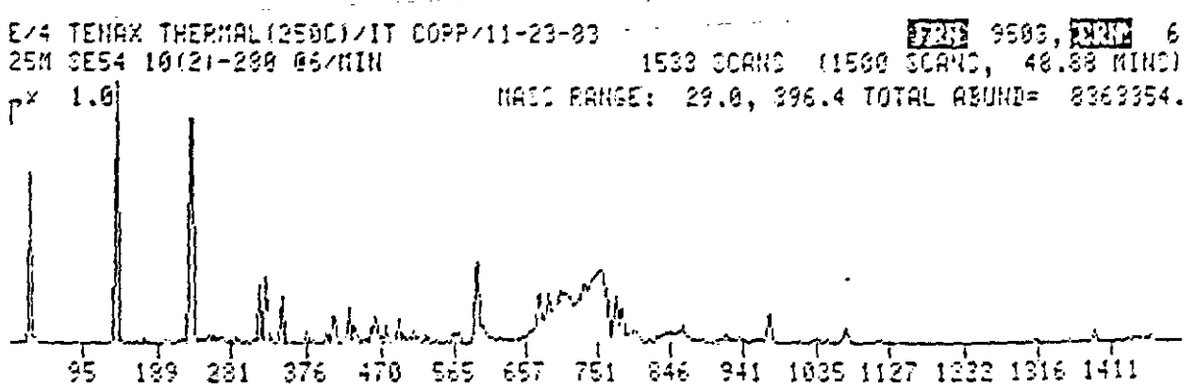
IT Corporation

CEC Job No. 19842-17

Lab Number: 296141 continued

Sample Description: E/4 Front, Tenax

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M3	PI
776	Benzamide	1.	300	0.
783	Possible Methyl-benzamide	0.7	200	0.
975	Anthracene and or Phenanthrene	0.5	100	0.
1036	Probable Methyl-phenanthrene	0.1	20	0.
1049	Probable Methyl-anthracene	0.1	20	0.
1072	$C_{16}H_{12}$ (possible Dibenzoheptafuluene)	0.5	100	0.
1113	Fluoranthene	0.1	30	0.(
1138	Pyrene	0.1	30	0.(



AR100361 A6

ORIGINAL
(Red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for

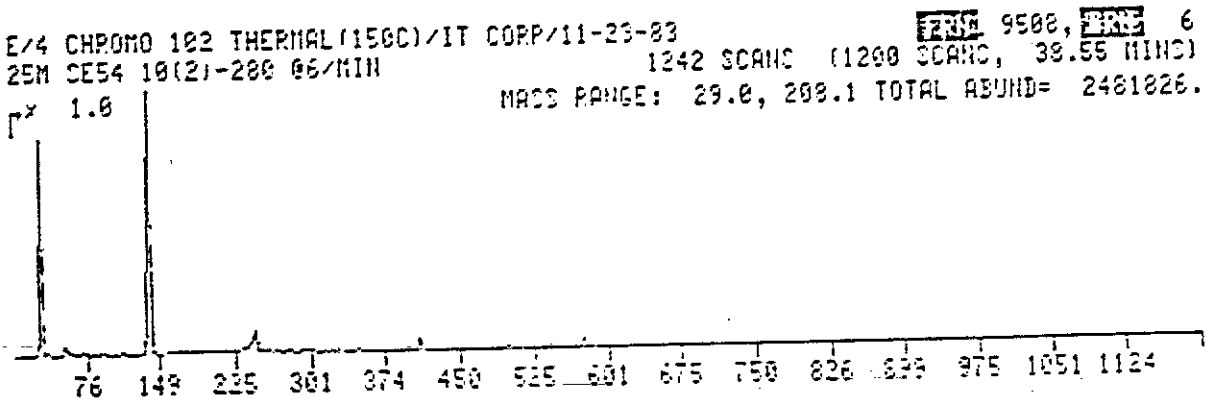
IT Corporation

CEC Job No. 19842-17

Lab Number: 296141

Sample Description: E/4 Back, Chromosorb 102

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3
36	C_4H_8 Hydrocarbon Sulfur Dioxide	<0.1	<20
140	Benzene	2.	500
244	Acetic Acid	0.4	100
409	Benzaldehyde	0.1	20



ORIGINAL
(Red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

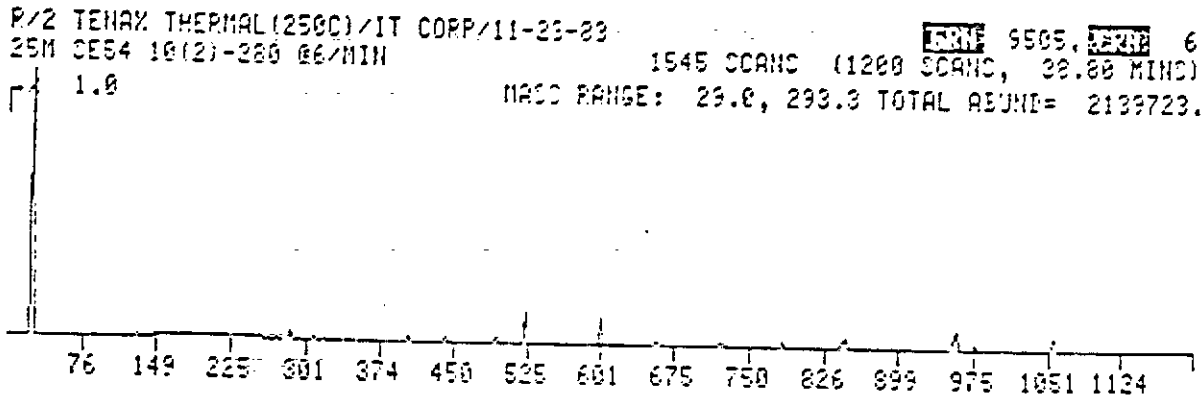
Results of Analyses
for

IT Corporation

CEC Job No. 19842-17

Lab Number: 296142 ← BACKGROUND
Sample Description: R/2 Front, Tenax

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M3
523	Nonanal	0.1	10
602	Decanal	<0.1	<10
847	Possible Lauric Acid	0.1	10
957	Myristic Acid	0.2	20
1056	Possible Palmitic Acid	<0.1	<10



AR100363 #6

ORIGINAL
(Red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for

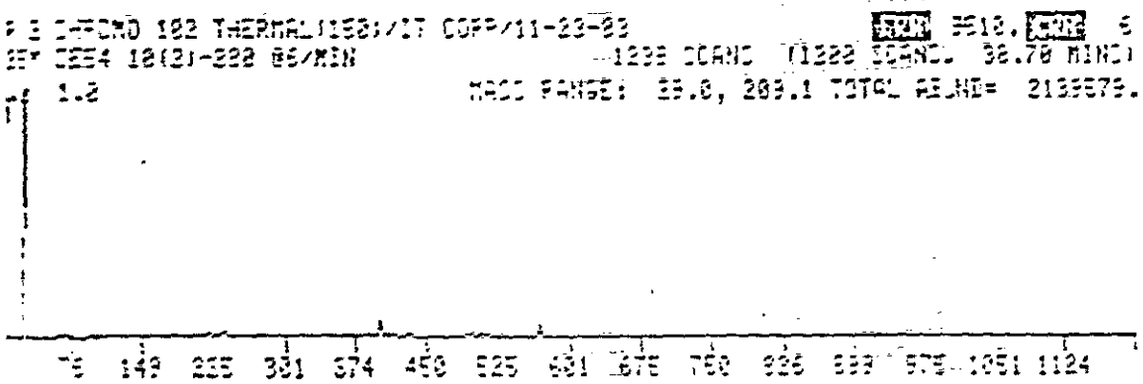
IT Corporation

CEC Job No. 19842-17

Lab Number: 296142

Sample Description: R/2 Back, Chromosorb 102

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M3
401	Benzaldehyde	0.1	10
569	$C_{10}H_{14}$ Alkylbenzene	<0.1	<10



#6

ORIGINAL (red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for

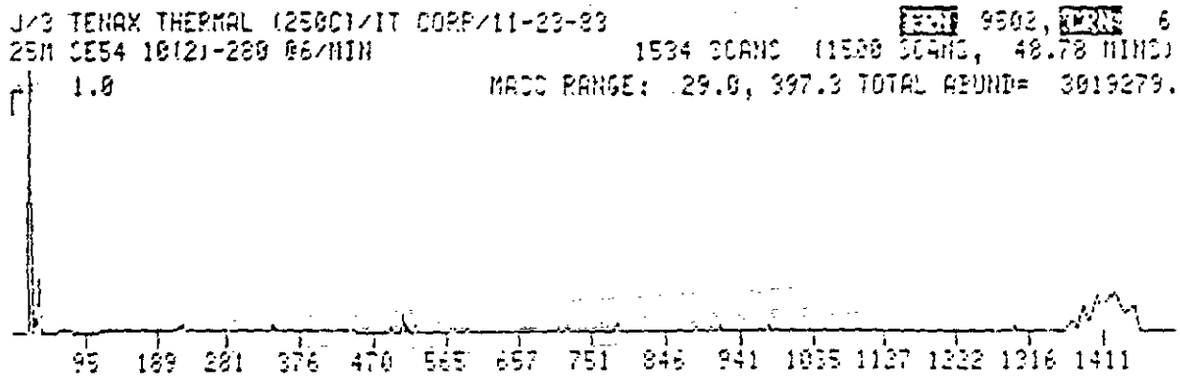
IT Corporation

CEC Job No. 19842-17

Lab Number: 296143 ← Background

Sample Description: J/3 Front, Tenax

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M3
341	Styrene	<0.1	<20
403	Benzaldehyde	<0.1	<20
492	Acetophenone	<0.1	<20
508	Ethylstyrene	<0.1	<20
523	Nonanal	<0.1	<20
785	Unsaturated Hydrocarbon	<0.1	<20
914	Hydrocarbon	<0.1	<20
977	Hydrocarbon and Unknown	<0.1	<20
1385	Unknown	0.6	120
1402	Unknown	1.	200
1425	Unknown	3.	600



AR100365

ORIGINAL
(Red)

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

Results of Analyses
for

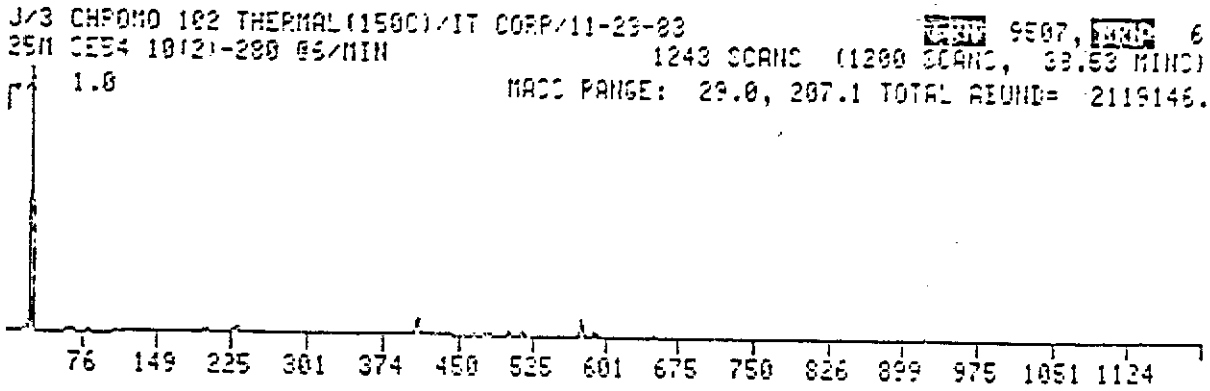
IT Corporation

CEC Job No. 19842-17

Lab Number: 296143

Sample Description: J/3 Back, Chromosorb 102

CTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M3	F
408	Benzaldehyde	0.1	30	0
575	$C_{10}H_{14}$ Alkylbenzene	<0.1	<20	<0



AR100366

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

ORIGIN (Red)

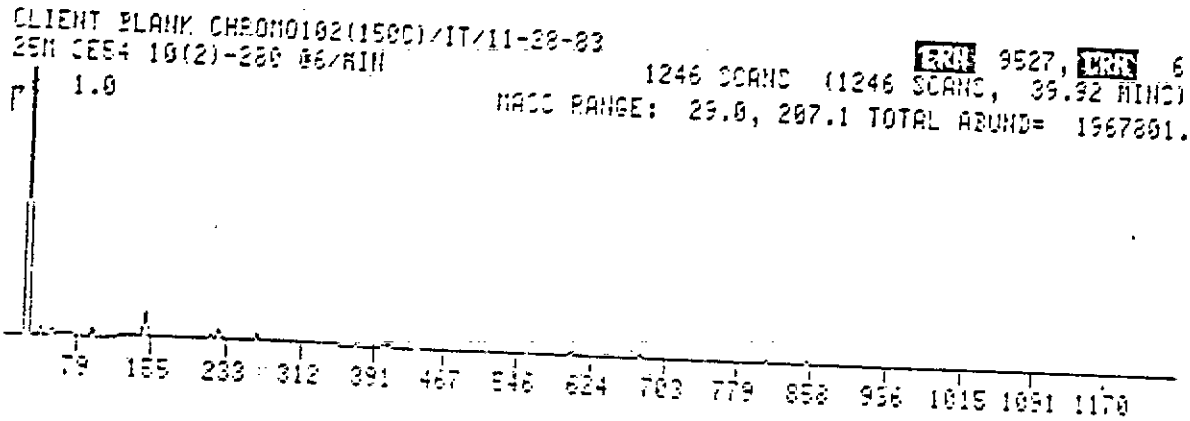
Results of Analyses
for
IT Corporation

Job No. 19859-17

Lab Number: 296315

Sample Description: Blank Chromosorb 102 Back Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3
150	C_8H_{18} Hydrocarbon	0.2	--
225	Toluene	<0.2	--



CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

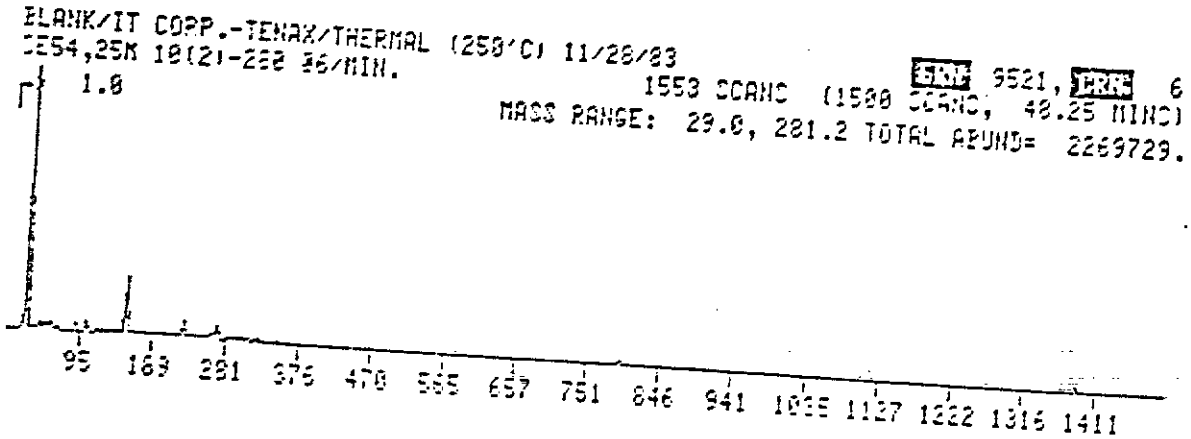
ORIG
(Re

Results of Analyses
for
IT Corporation

Job No. 19859-17

Lab Number: 296315
Sample Description: Blank Tenax Front Section

SPECTRUM NUMBER	COMPOUND	MICROGRAMS	MICROGRAMS/M^3
90	Hexane	0.2	--
104	Chloroform	0.6	--
156	C_8H_{18} Hydrocarbon	1.	--
229	Toluene	0.3	--
269	Tetrachloroethylene	0.6	--



AR100368

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.

ORIGI
(Rec

Results of Analyses
for

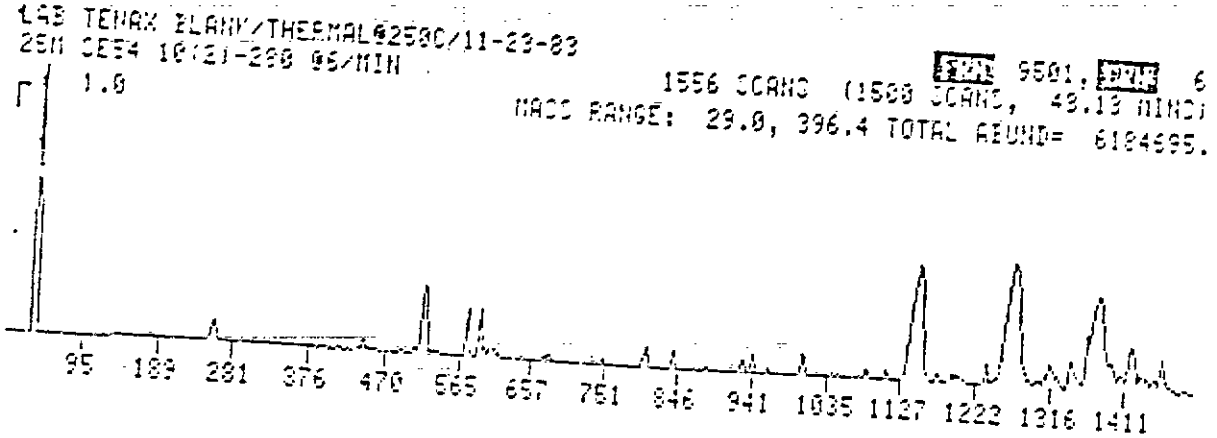
IT Corporation

CEC Job No. 19842-17

Lab Number: 296144

Sample Description: Blank, Front, Tenax

SPECTRUM NUMBER	COMPOUND	MICROGRAMS
260	Acetic Acid	0.4
520	Cresol	1.
576	Dimethylphenol	0.5
593	Ethylphenol	0.6
802	Alkylbenzene	<0.1
	Unsaturated Hydrocarbon	
805	Hydrocarbon	
840	Unsaturated Hydrocarbon	0.1
929	Unsaturated Hydrocarbon	0.1
940	Unsaturated Hydrocarbon	0.1
1004	Hydrocarbon	0.1
	Hydrocarbon and Unknown	0.2
1149	Unknown	5.
1267	Unknown	7.
1378	Unknown	6.



Blank was broken in transit; chromosorb 102 section was lost.

AR100369

ATTACHMENT No. 1

WESTON·SPER

ERT - Edison
300 McGaw Drive - 2nd Floor, Raritan Center
Edison, NJ 08837 • (201) 225-6266

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-6669

MEMORANDUM

TO: Rodney Turpin, ERT

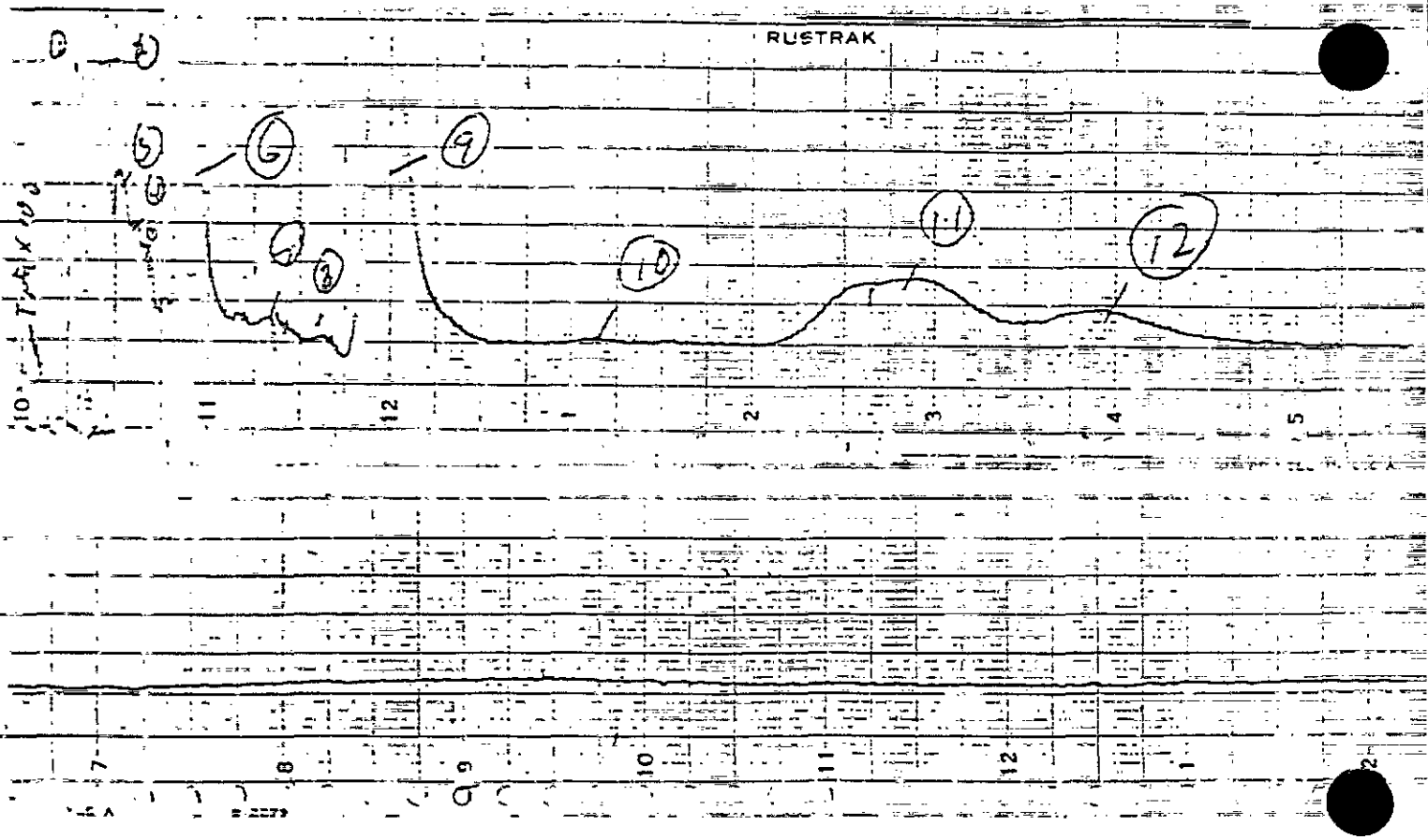
FROM: Philip R. Campagna, ERT/TAT

SUBJECT: Air Sampling and Monitoring At Rhinehart Tire Fire in Winchester, VA. (TDD# 12-8311-02)

DATE: November 29, 1983

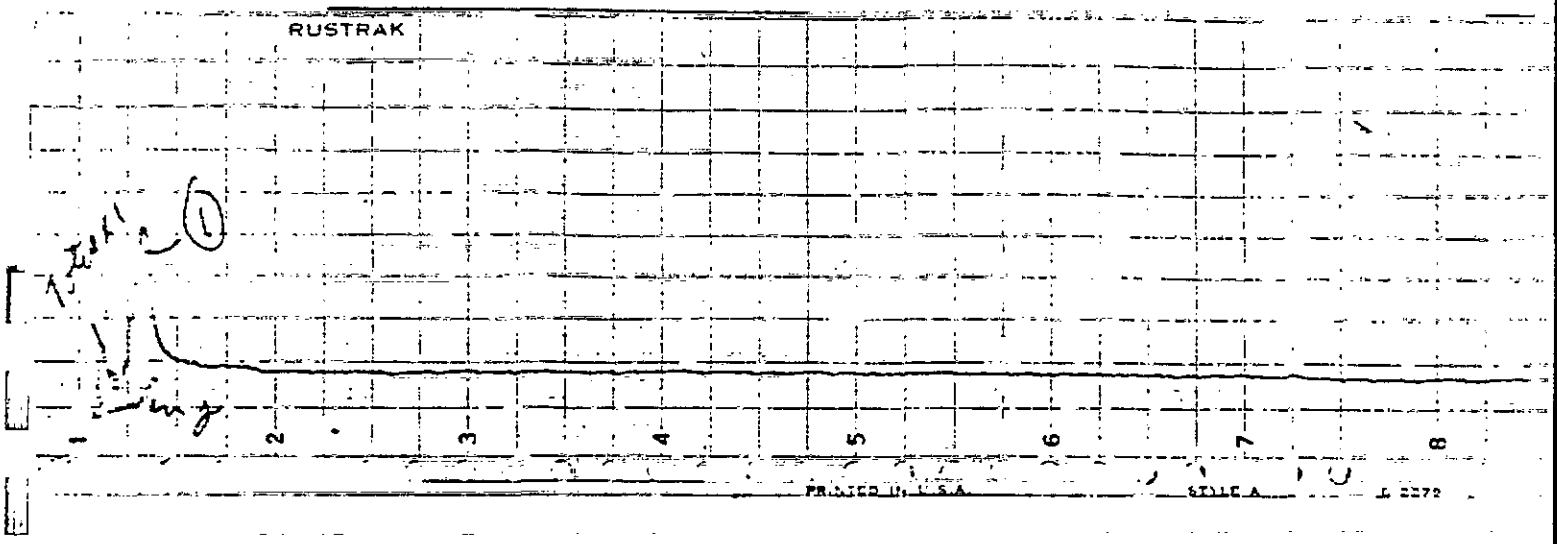
11/08/83

897/14 Station #1. Volume of air sampled (0.55 l/min for 117 min) = 64. 35 l. TWA methane = (120)(0.3)/(64.35) = 0.56 pm. GC: 12 peaks observed Rt. = 0.1, 0.3, 0.6, (0.95 1.4, 2.7, 3.4, 4.2, 7.2 11.4 and 14.3 cms.

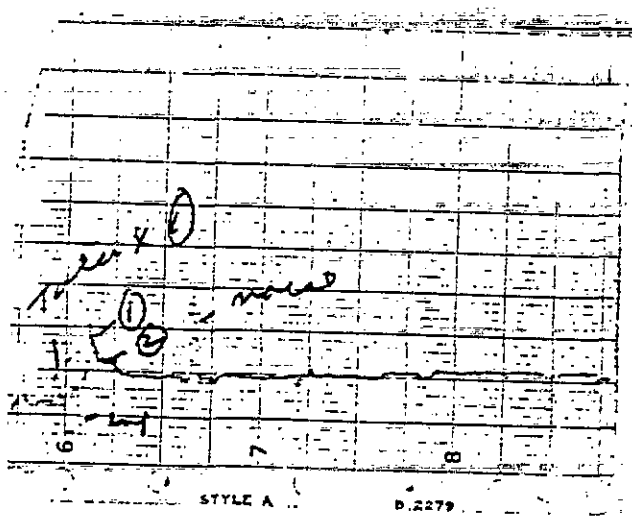


ORIGINAL
(Red)

894/15 Station #3 (Background). Volume of air sampled (0.5 l/min for 160 min) = 83
TWA as methane = (1.0)(0.3)/(83) = 0.003 pm. GC one peaked observed Rt = 0.3 cms.

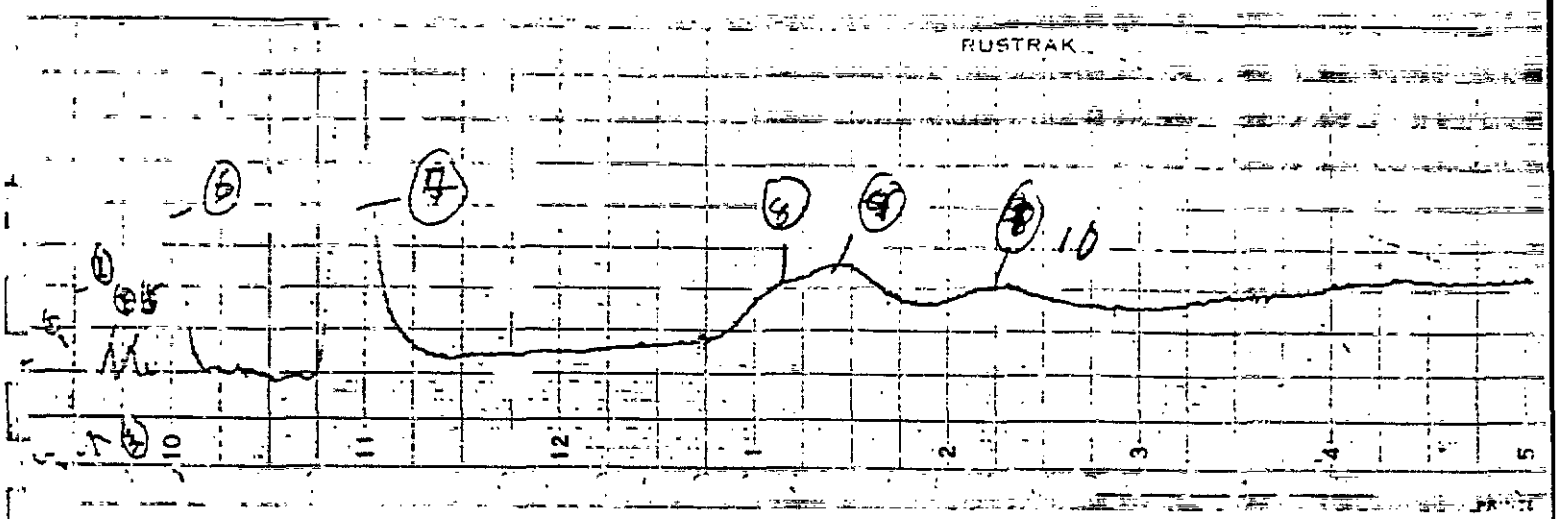


865/16 Station #4. Volume of air sampled (0.5 l/min for 135.4 min) = 67.7 l. TWA
methane = (0.7)(0.3)/67.7) = 0.003 ppm. GC 2 peaks observed Rt = 0.1 and 0.3 cms.

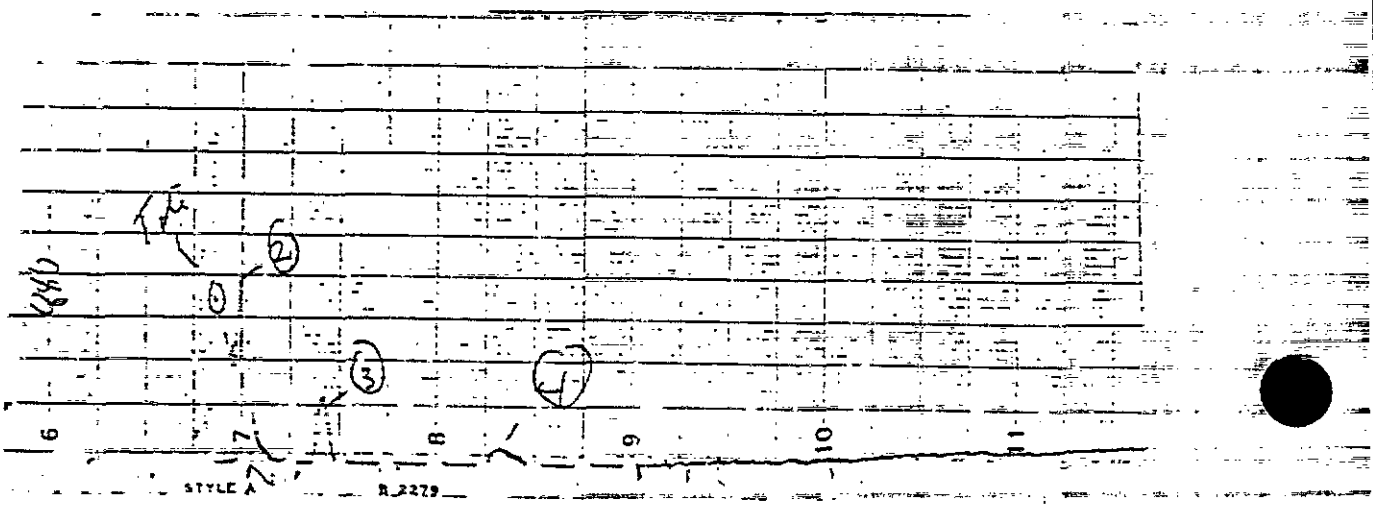


11/04/83

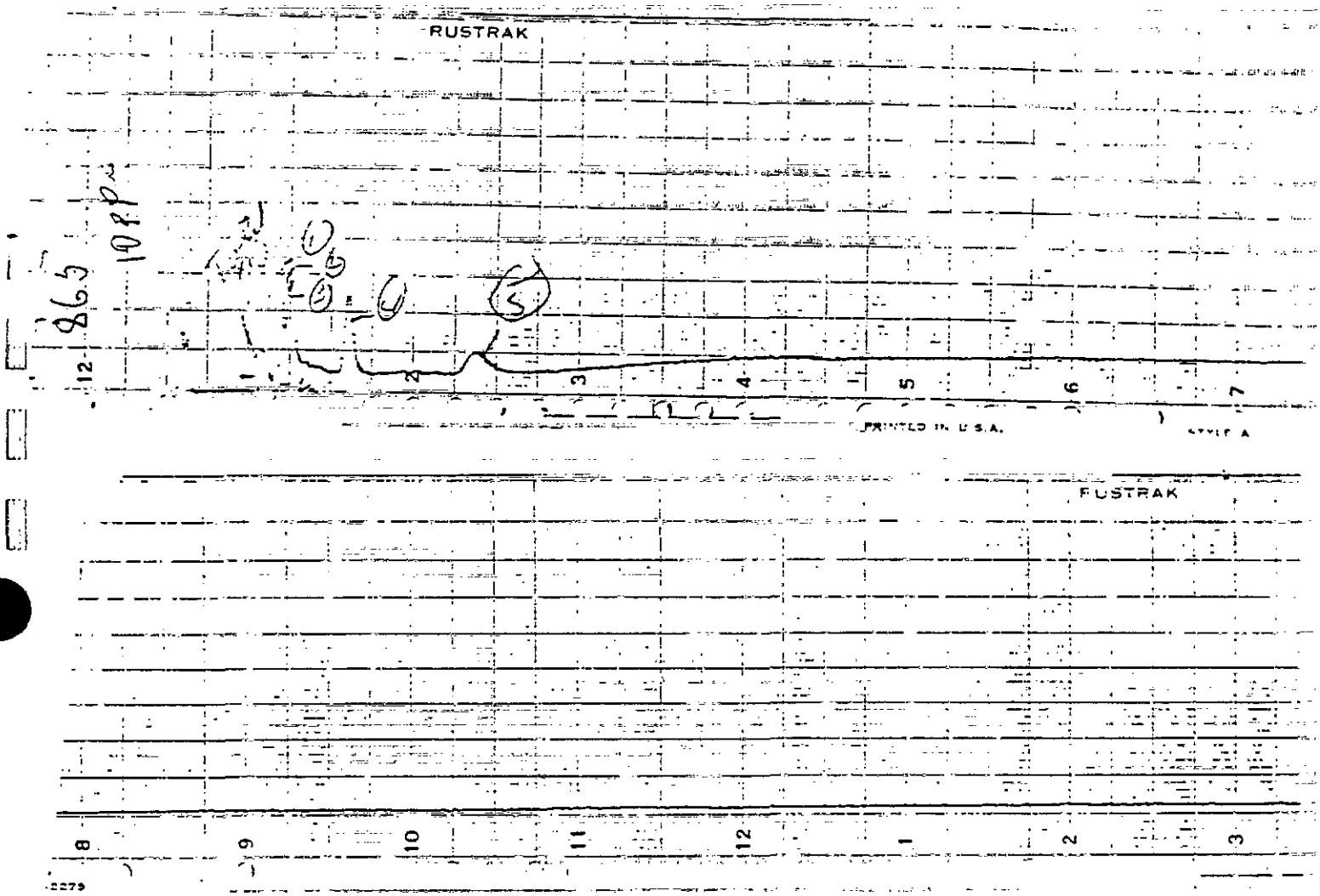
866/42 Station #1. Volume of air sampled (54.4 min at 0.4 l/min) = 22.96 l. TWA methane (70)(0.3)/(22.96) = 0.914 ppm. GC 10 peaks observed Rt = 0.05, 0.1, 0.3, 0 0.85, 1.3, 3.7, 9.5, 10.0 and 12.1 cms.



886/41 Station #4. Volume of air sampled (180 min at 0.4 l/min) = 72 l. TWA as methane = (4.8)(0.3)/(72) = 0.02 ppm. GC 4 peaks observed Rt = 0.1, 0.3, 1.2, and cms.



865/43 Station #5. Volume of air sampled (180 min at 0.5 l/min) = 90 l. TWA as methane = (10)(0.3)/(90) = 0.033 ppm. GC 5 peaks observed Rt = 0.1, 0.2, 0.3, 1.2, 3.1 cms.



ORIGIN
(Red,

RHINEHART TIRE FIRE 11/03/83 And 11/04/83

Station #	ERT 2-Stag Sample# (Volume in liter)	MCEF 0.45 u Sample# (Volume in Liter)	600 mg Carbon Sample# (Volume Liter)	3 Stage Fil Sample# (Vo in liter)
11/03/83 1	J/1 (6.16) A/5 (11.66)	848/11 (552)		
3	F/4 (4.36) C/7 (10.71)	888/13 (588.8)		
4	E/3 (2.69) R/8 (7.14)	889/10 (307.5)		
11/04/83 1	K/18 (10.33) J/22 (4.99)	889/31 (414)	892/29 (360)	882/38 (163.
3	C/19 (9.16) F/23 (3.59)	890/35 (414)	864/28 (360)	857/37 (360)
4	R/20 (9.38) E/24 (13.55)	887/30 (414)	893/26 (360)	881/40 (360)
5	A/21 (41.49) I/25 (4.11)	888/36 (414)	858/27 (360)	878/39 [redacted]
1 off		848/32 (395.4)	893/47 (344.6)	857/52 (347)
2 off		890/44 (319.6)	864/48 (318.4)	878/51 9320)

ORIGINAL
(Red)

The sediment samples were also all in the pH range of 6.0 to 7.0. The 2:1 dilution scheme compounded by the 5:1 extraction scheme resulted in the following test sample concentrations; 1.2%, 2.3%, 4.5%, and 9.0%. Samples were also rated under the same guidelines established in the aqueous samples. It should be noted that not every aqueous sample had a corresponding sediment sample.

Sample	Rating	Response
1832	Clean	Responses up to 11.3%
1837	Clean	Responses up to 10.2%
1836	Clean	Responses up to 11.6%
1830	Moderate	Responses up to 16.1%
1833	Moderate	Responses up to 17.7%
1831	Moderate	Responses up to 20.3%
1835	Significant	Responses up to 32.0%
1834	Significant	Responses up to 70.8%

Comparison of the sediment and soil samples displayed some signficant trends. Both sediment and aqueous samples 1834 and 1835 displayed, respectively, the highest and second highest microtox NPLD responses. Aqueous sample 1833 displayed a signficant Microtox response with the corresponding 1833 sediment sample displaying a decreased moderate response; owing to a greater dilution test scheme in the sediment sample. This similar trend was also evident in sample 1832 which displayed a moderate respo for the aqueous sample and a clean response for the sediment sample. Samples 1836 , 1837 displayed clean responses in both sample categories. Sample 1831 gave somewha inconsistent results in that the aqueous sample displayed a clean response while th corresponding sediment sample displayed a moderate response. It may be possible th the higher response of the sediment sample might be owing to the extraction/washing any contaminants from the granular sediment sample.

ORIGI
(Rec

APPENDIX D

GROUNDWATER STUDY PLAN

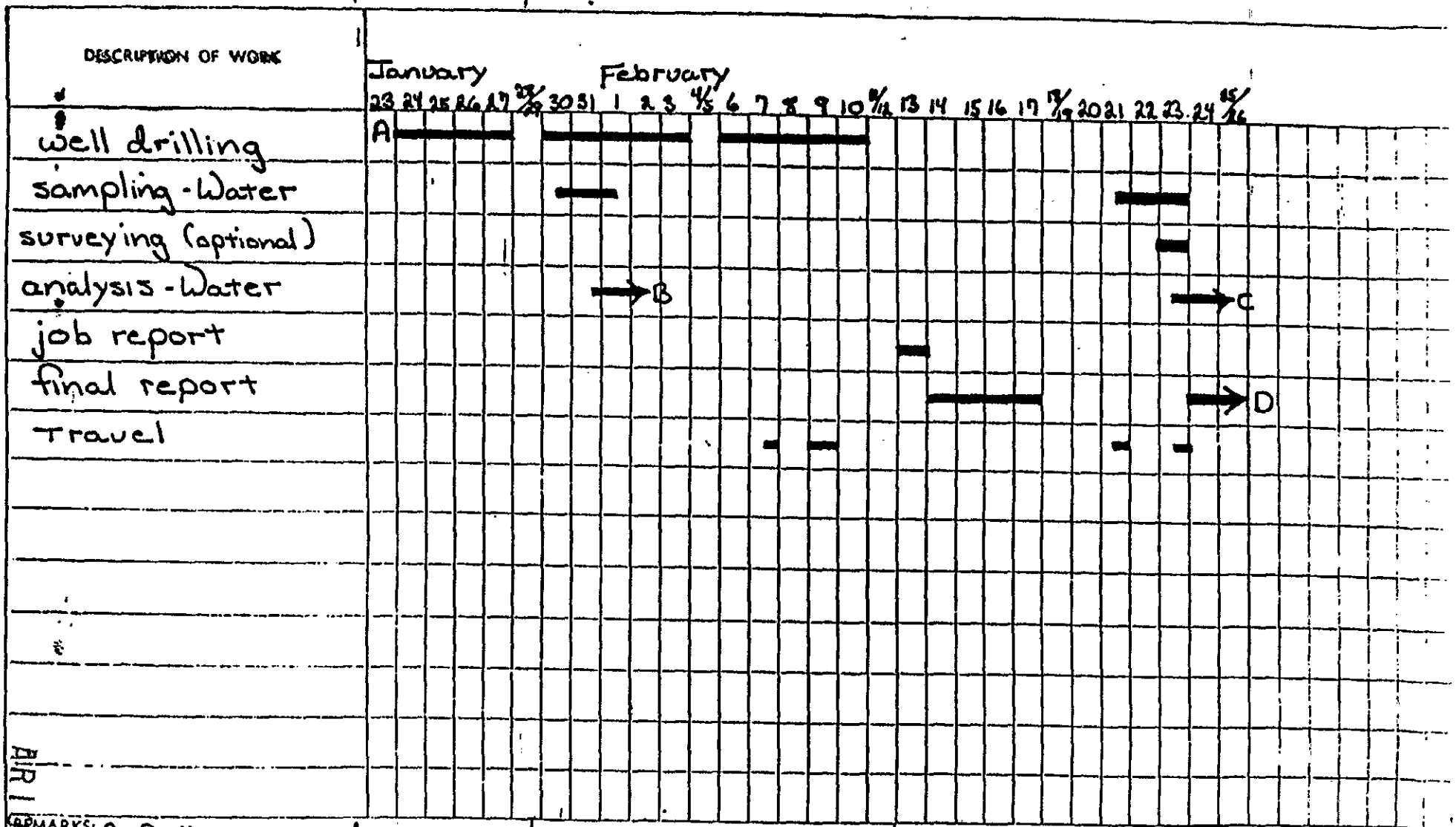
RHINEHART TIRE FIRE
Winchester, Virginia

JANUARY, 1983

ENVIRONMENTAL RESPONSE TEAM
WOODBRIDGE AVENUE, EDISON, NEW JERSEY

Rhinehart Tire Fire
Ground Water Monitoring Program

IT ENVIROSCIENCE, INC.



AIR 100377

REMARKS:
A - Drilling commenced on Jan 3, 1984
B - Virginia Water Control Board 4-6 weeks for results
C - same as above
D - All data to date compiled and draft report prepared while awaiting water results

MADE BY: T. Stone
DATE: 2/8/84
LAST REV. DATE: 12/16/83
1ST revision

PROJECT SCHEDULE
FOR: Rhinehart Tire Fire
Winchester Virginia

ORIGINAL (Red)

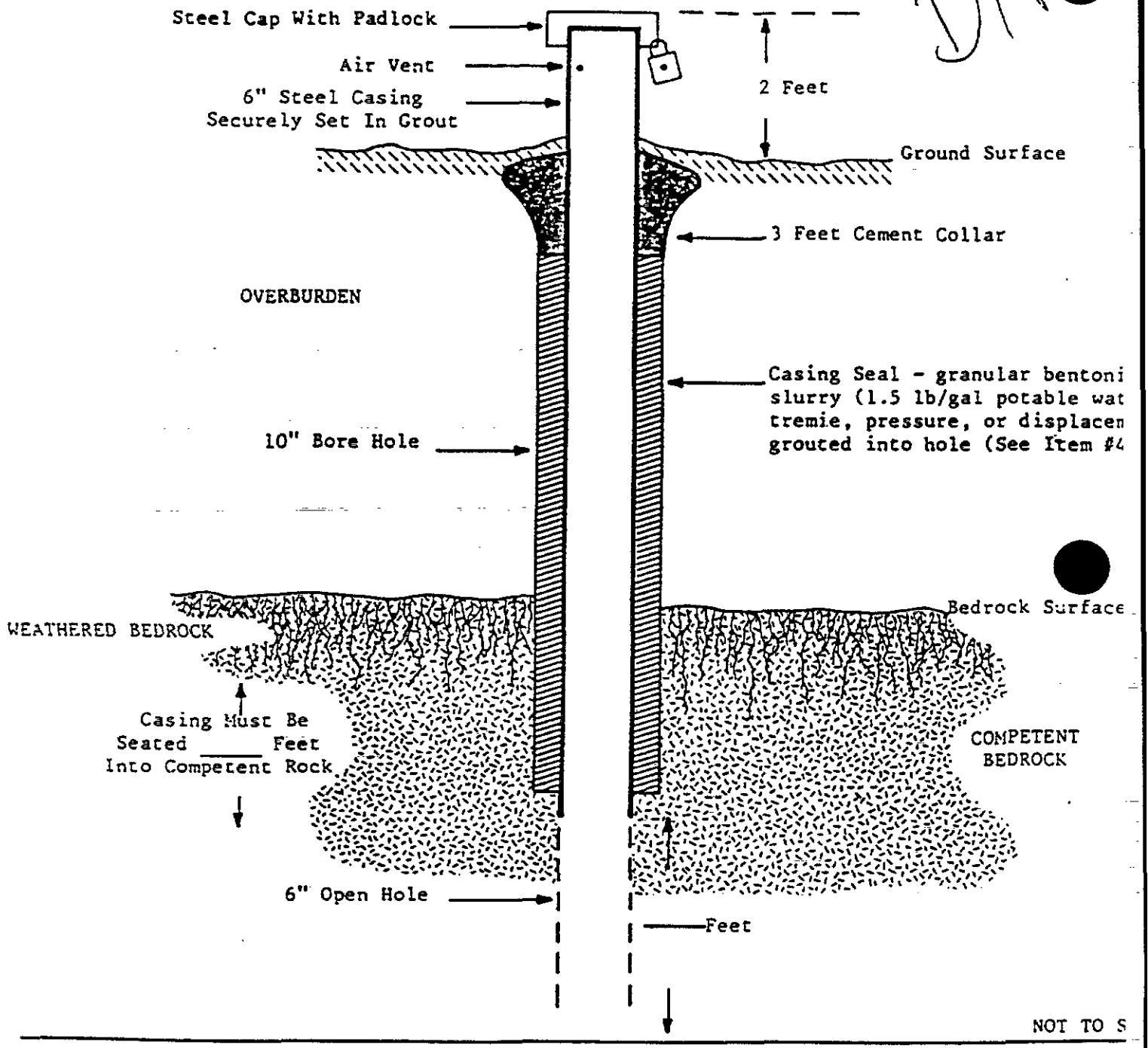
ORIGINAL
(Red)

DRAFT

Site Name: _____

Location: _____

Date: _____



REQUIREMENTS:

1. The contractor is responsible for obtaining all permits or licenses required by state or local governing authorities.

AR100378

ORIGIN
(Red)

2. Oversize borehole, minimum four (4) inches greater than casing diameter drilled through overburden and casing sealed ten (10) feet into competent rock unles shown otherwise above.

3. Approved high grade sodium base, well sealant type, granular bentonite must be used to seal casing. Casing sealant and drilling fluids must be mixed with potable water.

4. Well must be developed upon completion for a minimum of one (1) hour or to yield a turbid-free discharge.

5. The driller must maintain an accurate written log of all materials encountered in each hole, record all construction details for each well, and record the depth of major water bearing fracture zones. This information must be submitted to the IT project manager within one week of the job completion.

6. Cement collar must be installed a minimum of one (1) hour after casing seal has been emplaced.

7. Locking caps must be provided to secure each well.

ADDITIONAL REQUIREMENTS (IF CHECKED):

/ / 1. Split Spoon Samples (In Overburden)_____

/ / 2. Rock Core Samples_____

/ / 3. Dedicated Bailer (Sampler) in Well(s)_____

/ / 4. Borehole Geophysical Log(s)_____

/ / 5. Other_____

_____

* MODIFICATION OF THIS SPECIFICATION MUST BE APPROVED BY THE IT PROJECT MANAGER PRIOR TO IMPLEMENTATION.

Rev 12/83 TS (Modified from NJDEP)

dlg/0349D

ORIGINAL
(Red)

RHINEHART TIRE FIRE 11/22/83

Station #	ERT 2-Stag Sample# (Volume in liter)	MCEF 0.45 u Sample# (Volume in Liter)	600 mg Carbon Sample# (Volume Liter)	3 Stage [redacted] Sample# [redacted] in liter)
1 am	A/1 (9.02) E/4 (4.04)	865/6 (348)	887/7 (360)	868/9 (270)
pm	F/13 (4.8) B/14 (8.79)	889/5 (360)	888/17 (360)	889/16 (270)
3 am (Bckgrnd)	R/2 (10.14) J/3 (5.00)	889/5 (360)	888/8 (360)	886/10 (303.8
pm	A/19 (14.92)	865/21 (360)	887/22 (360)	868/10 (270)
6 pm (Decon)	R/11 (11.02) J/12 (5.52)	861/18 (421.2)		

AR100380

ORIGINAL
(Red)

APPENDIX B

WATER QUALITY DATA

RHINEHART TIRE FIRE
Winchester, Virginia

NOVEMBER 3 to DECEMBER 19, 1983

VIRGINIA WATER QUALITY BOARD
RICHMOND, VIRGINIA

ORIGINAL
(Red)

COMMONWEALTH of VIRGINIA

STATE WATER CONTROL BOARD
Valley Regional Office
116 North Main Street
P.O. Box 268
Bridgewater, Virginia 22812
(703) 828-2595

Richard N. Burton
Executive Director

Post Office Box 11143
Richmond, Virginia 23230
(804) 257 0056

17 January 1984

Mr. Darius C. Ostrauskos
Environmental Scientist -
Super Fund Branch
U.S. Environmental Protection Agency
Region III
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Ostrauskos:

Attached are copies of lab data on water samples taken at the Tire Fire site in Frederick County. The data was performed by the State. Lab. Please note that the date which the lab received the samples is the next day following the sampling.

These are all of the data which I have. As more is received, a copy will be forwarded.

Very truly yours,

R. F. Tesh

R. F. Tesh, Director
Division of Surveillance
and Field Studies

jes

Attachment

cc: VRO File
Harry Allen
EPA-ERT
Raritan Depot, Bldg. 10, Woodbridge Ave.
Edison, NJ 08837

Division of Consolidated Laboratory Services

ORIGINAL (Red)

CERTIFICATE OF ANALYSIS

November 28, 1983

TO: Ray Tesh
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 22312

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-04-83

Identification No.:

Lab #: 10583-10587

11/3/93
Q=2.

Submitted By: Dave Chance

Analyst: James C. Peterson, Ph.D

Description:
10583--Unnamed tributary to Hogue Creek
Upper portion unnamed tributary--pool of collected product
10584--Unnamed tributary to Hogue Creek
Free flowing stream upper portion, just above big pool of product ✓
10585--X-tributary Hogue Creek
Lower portion unnamed tributary from fire site
10586--Hogue Creek Control
Hogue Creek just above confluence with unnamed tributary from fire site
10587--Hogue Creek
Hogue Creek downstream from confluence with unnamed tributary from fire site

Results:

Priority Pollutants	10584	10585	10586 - Probably Leachate	10587
Benzene	0.9ug/L	1.3ug/L	0.3ug/L	0.5ug/L
Toluene	1.7ug/L	2.3ug/L	<0.2ug/L	<0.2ug/L
Ethylbenzene	4.6ug/L	1.2ug/L	0.8ug/L	<0.2ug/L
Xylenes	2.4ug/L	0.6ug/L	<0.2ug/L	<0.2ug/L
Naphthalene	30 ug/L	10 ug/L	<1 ug/L	<1 ug/L
Fluorene	13 ug/L	4.6ug/L	<1 ug/L	<1 ug/L
Phenanthrene	4.1ug/L	2.0ug/L	<1 ug/L	<1 ug/L
Caprolactam	13 mg/L	4.8mg/L	140 ug/L	210 ug/L

Other Components Identified in 10584, 10585, 10586, 10587:
Benzonitrile, Acetophenone, Tolunitrile, Phthalonitrile, Benzothiazole, Methyl benzothiazole, 1-methyl naphthalene, C_3 benzenes, C_4 benzenes

Sample 10583 was redundant with 10584 and was not analyzed.

James C. Peterson

STATE OF VIRGINIA
CITY/COUNTY OF _____ to-wit:

THIS day personally appeared before me _____ a notary public, in and for said city/count
Commonwealth of Virginia, _____, who signed the foregoing Certificate of Analysis, before me, and after being duly sworn, made
that he performed the analysis and/or examination the results of which are herein contained, (2) that said analysis and/or examination was performed in a laboratory o
by the Division of Consolidated Laboratory Services of the Commonwealth or authorized by such Division to conduct such analysis and/or examination and (3) that t
tificate of Analysis is true and correct.

Given under my hand this _____ day of _____ 19____

_____ Notary

My commission expires _____ 19____

DCLS-03-063

AR100383

Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

November 28, 1983

TO: Ray Tesh
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 22312

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-14-83

Identification No.:

Lab #: S83-695 through S83-700

11/10/83
Q=10.8

Submitted By: Ray Miller

Analyst: James C. Peterson, Ph.D.

Description:
S83-695 -- Site 01, tributary
S83-696 -- Site 02, downstream
S83-697 -- Site 03, upstream
S83-698 -- Site 03a, upstream
S83-699 -- Site 04, confluence
S83-700 -- VOA blank

Results:

Priority Pollutants	01 695	02 696	03 697	03a 698	04 699	B 700
Benzene	1.5ug/L	0.3ug/L	no volatile sample	<0.2ug/L	no volatile sample	<0.2ug/L
Toluene	3.3ug/L	0.3ug/L		<0.2ug/L		<0.2ug/L
Ethylbenzene	9.1ug/L	0.2ug/L		<0.2ug/L		<0.2ug/L
Xylenes	7.6ug/L	0.3ug/L		<0.2ug/L		<0.2ug/L
Naphthalene	56 ug/L	<1 ug/L	< 1ug/L	<1 ug/L	<1 ug/L	<1 ug/L
Acenaphthalene	22 ug/L	<1 ug/L	< 1ug/L	<1 ug/L	1.0ug/L	<1 ug/L
Acenaphthene	26 ug/L	<1 ug/L	< 1ug/L	<1 ug/L	1.6ug/L	<1 ug/L
Fluorene	13 ug/L	<1 ug/L	< 1ug/L	<1 ug/L	<1 ug/L	<1 ug/L
Phenanthrene	6 ug/L	<1 ug/L	< 1ug/L	<1 ug/L	<1 ug/L	<1 ug/L
Caprolactam	8.5mg/L	1.6mg/L	140ug/L	<1 ug/L	9.0mg/L	<1 ug/L

Other Components Identified in 695, 696, 699:
Benzonitrile, Acetophenone, Tolunitrile, Benzothiazole, Methylbenzothiazole, 1-methyl naphthalene, C_3 benzenes, C_4 benzenes

James C. Peterson

STATE OF VIRGINIA
CITY/COUNTY OF _____, to-wit:

THIS day personally appeared before me _____, a notary public, in and for said city/county in Commonwealth of Virginia, _____, who signed the foregoing Certificate of Analysis, before me, and after being duly sworn, made oath that he performed the analyses and/or examination the results of which are herein contained, (2) that said analyses and/or examination was performed in a laboratory operated by the Division of Consolidated Laboratory Services of the Commonwealth or authorized by such Division to conduct such analyses and/or examination and (3) that this Certificate of Analysis is true and correct.

Given under my hand this _____ day of _____, 19____

_____

My commission expires _____, 19____

DCLS-03-063

Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

November 28, 1983

TO: Ray Tesh
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 22312

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-17-83

Identification No.:

Lab #: S83-722-724

11/16/83
Q=9.7 cfs

Submitted By: Ray Miller

Analyst: James C. Peterson, Ph.D.

Description: unnamed trib
S83-722--Site 01, Masey Run
S83-723--Site 02, Hogue Creek
S83-724--Site 02a, Rt. 614 bridge

Results:

Priority Pollutants (Volatiles Only)	01 722	02 723	02a 724
Benzene	1.1ug/L	<0.2ug/L	<0.2ug/L
Toluene	7.2ug/L	0.2ug/L	<0.2ug/L
Ethylbenzene	13.4ug/L	0.2ug/L	<0.2ug/L
Xylenes	26.9ug/L	0.5ug/L	<0.2ug/L

STATE OF VIRGINIA
CITY/COUNTY OF _____ to-wit:

James C. Peterson

THIS day personally appeared before me _____ a notary public, in and for said city/county in Commonwealth of Virginia, _____ who signed the foregoing Certificate of Analysis, before me, and after being duly sworn, made oath that he performed the analysis and/or examination the results of which are herein contained, (2) that said analysis and/or examination was performed in a laboratory operated by the Division of Consolidated Laboratory Services of the Commonwealth or authorized by such Division to conduct such analysis and/or examination and (3) that this Certificate of Analysis is true and correct.

Given under my hand this _____ day of _____, 19____

_____ Notary Public

My commission expires _____, 19____

DCLS-03-063

AR100385

Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

CERTIFICATE OF ANALYSIS

December 5, 1983

TO: Ray Tesh
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 23212

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-18-83

RECEIVED
DEC 8 1983
BY
NORTHERN REGIONAL OFFICE

Identification No.:

Lab #: S83-770-772

Submitted By: Ray Miller, SWCB

Analyst: M.Z. Martin
Mike Martin

Description:
S83-770: Site 01, water from pool on ~~Massey Run~~ unnamed trib
S83-771: Site 02, water, 100 yards downstream of confluence of ~~Massey Run~~ unnamed trib and Hogue Creek
S83-772: Site 02A, water at Rt. 614 bridge, Hogue Creek

Request: Volatile priority pollutants

Results:	01	02	OLO
Priority Pollutants	770	771	772
Benzene	2.0ug/L	<0.2	<0.2
Toluene	5.1	<0.2	<0.2
Ethyl benzene	6.0	0.8	<0.2
Xylenes	18.1	<0.2	<0.2

RECEIVED
DEC 14 1983
VALLEY REGIONAL OFFICE

DCLS-03-063 A

Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

CERTIFICATE OF ANALYSIS

December 5, 1983

TO: Ray Tesh
State Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, VA 23212

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-21-83

RECEIVED
DEC 1983
BY
NORTHERN REGIONAL OFFICE

Identification No.:

Lab #: S83-767-769

Submitted By: Ray Miller, SWCB

Analyst: M. E. Martin
Mike Martin

Description:
S83-767: Site 01, water from pool on unnamed trib to Massey Run
S83-768: Site 02, water, 100 yards downstream of confluence with unnamed trib to Massey Run on Hogue Creek
S83-769: Site 02A, water at Rt. 614 brodge, Hogue Creek

Request: Volatile priority pollutants

Results:

Priority Pollutants	01 767	02 768	02A 769
Benzene	0.5ug/L	0.2	<0.2
Toluene	1.1	<0.2	<0.2
Ethyl benzene	3.5	<0.2	<0.2
Xylenes	3.3	<0.2	<0.2

RECEIVED
DEC 1983
VALLEY REGIONAL OFFICE

DCLS-03-063 A

Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL
(Red)

CERTIFICATE OF ANALYSIS

December 22, 1983

TO: Ray Tesh
Valley Regional Office
State Water Control Board
P. O. Box 268
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 11-30-83

11/29/83 @ 1530

Identification No.:

Lab #:

Submitted By: REM

Analyst: J. C. Peterson, Ph.D.

Description:
11178, 11187: Station 01, approximately 1500 ft. upstream of confluence with Hogue
11179, 11188: Station 02, 100 yds. downstream of confluence with Massey Run
11180, 11192: Station 02A, at Rt. 614 bridge (gauging station) unnamed trib.

Results: Priority Pollutants	01	02	02A
Benzene	5.1 ug/L	<0.2ug/L	0.2 ug/L
Toluene	10.9	0.3	<0.2
Ethyl benzene	1.9	1.0	1.7
Xylenes	5.9	<0.2	<0.2
Naphthalene	20.	<1.	<1.
Phenol	460.	6.8	1.0

No other priority pollutants were detected (Limit of Detection = 0.2 to 5ug/L).

Other Contaminants*			
2(2-n-butoxyethoxy)ethanol	9.7 mg/L	110. ug/L	23. ug/L
benzothiazole	380. ug/L	2.7ug/L	3.7 ug/L
caprolactam	12.9 mg/L	110. ug/L	84. ug/L
2-methylbenzothiazole	180. ug/L	1.2ug/L	2.3 ug/L
Benzoic Acid	10. mg/L	16.6ug/L	1.5 ug/L

*Confirmed by GC/MS with authentic standards.

Other major contaminants identified by GC/MS, not yet confirmed with authentic standards: phenylisocyanate, hexanedinitrile, N,N dimethylbenzamide, 3-methylbenzoic acid, cyanobenzoic acid.

RECEIVED
JAN 6 1984
VALLEY REGIONAL OFFICE

AR100388

DCLS-03-063 A

Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

CERTIFICATE OF ANALYSIS

December 23, 1983

TO: Ray Tesh
Valley Regional Office
State Water Control Board
P. O. Box 268
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: 12-07-83

Identification No.:

Lab #: 12/6/83 Q=40

Submitted By: REM, D. Wright

Analyst: J. C. Peterson, Ph.D.

Description:
11400, 11404, 11408: Station 01, approximately 1500 ft. upstream of confluence with Hogue Creek
11401, 11405, 11409: Station 02, 100 yds. downstream of confluence with un-named run
11402, 11406, 11410: Station 02A, at Rt. 614 bridge (gauging station)
11399, 11403, 11407: Rhinehart's Pond (R.P.)

Results:

Priority Pollutants	R.P.	01	02	02A
Benzene	141 ug/L	4.7 ug/L	0.5 ug/L	1.1ug/
Toluene	171	9.4	0.7	<0.2
Ethylbenzene	112	7.6	0.5	<0.2
Xylenes	88	7.1	0.4	<0.2
Naphthalene	100	14	2.0	1.1
Acenaphthylene	350 ppb	51	3.2	<2
Phenol	2.7 mg/L	260	5.1	<2

No other priority pollutants were detected (Limit of Detection: 0.2 to 5ug/L)

Other Contaminants*

2(2-n-butoxyethoxy)ethanol	9.7 mg/L	1.6 mg/L	190 ug/L	100 ug/
benzothiazole	2.2 mg/L	320 ug/L	49 ug/L	30 ug/
caprolactam	66 mg/L	11 mg/L	340 ug/L	210 ug/
2-methylbenzothiazole	560 mg/L	230 ug/L	16 ug/L	11 ug/
benzoic acid	27 mg/L	8.8 mg/L	200 ug/L	<2 ug/

*confirmed by GC/MS with authentic standards

Other contaminants identified by GC/MS, not yet confirmed with authentic standards: phenylisocyanate hexanedinitrile, N,N dimethylbenzamide, 3-methylbenzoic acid, cyanobenzoic acid.

RECEIVED

VALLEY REGIONAL OFFICE

DCLS-03-063 A

Department of General Services
Division of Consolidated Laboratory Services

ORIGINAL (Red)

CERTIFICATE OF ANALYSIS

December 22, 1983

TO: Ray Tesh
Valley Regional Office
State Water Control Board
P. O. Box 268
Bridgewater, VA 22812

1 N. 14th Street
Richmond, Virginia 23219
Contact Tel. No. 786-4898

Date Received: December 13-14

Identification No.:

Lab #: 134-151, 152, 153, 148, 150, 149

Submitted By:

Analyst: J. C. Peterson

RECEIVED
DEC 29 1983
VALLEY REGIONAL OFFICE

Description:
11704, 11708 Donald Swaner well 134-151
11705, 11709 Robinson well 134-152
11706, 11710 W. T. Rhinehart well 134-153
11628, 11629 Rhinehart spring 134-148
11631—11632 Palmer well 134-150
11634—11635 Pigeon well 134-149 PC84-196

Results:

Priority Pollutants	134-151	152	153	148	150	149
Benzene	<0.2ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	0.8	0.3	<0.2	<0.2	<0.2	<0.2
Ethyl benzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Xylenes	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	<1	<1	<1	<1	<1	<1

No other priority pollutants were detected (Limit of Detection = 0.2 to 5ug/L)

No non-priority pollutant tire fire constituents normally found in Hogue Creek and Massey Run were detected in these well waters. (Limit of Detection = 1 to 10ug/L)

STATE OF VIRGINIA
CITY/COUNTY OF Richmond to-wit:

J. C. Peterson

THIS day personally appeared before me Helen Shaw a notary public, in and for said city/county Commonwealth of Virginia J. C. Peterson, who signed the foregoing Certificate of Analysis, before me, and after being duly sworn, made oath that he performed the analysis and/or examination the results of which are herein contained, (2) that said analysis and/or examination was performed in a laboratory operated by the Division of Consolidated Laboratory Services of the Commonwealth or authorized by such Division to conduct such analysis and/or examination and (3) that the Certificate of Analysis is true and correct.

Given under my hand this 22 day of Dec. 19 83

Helen Shaw

My commission expires May 18 19 87

Page 1 Of 1

DCLS-03-063

AR100390

ORIGINAL
(Red)

APPENDIX C

MICROTOX® ANALYSIS REPORT
WATERS AND SEDIMENTS OF
MASSEY RUN AND HOGUE CREEK

RHINEHART TIRE FIRE
Winchester, Virginia

NOVEMBER 18, 1983

ENVIRONMENTAL RESPONSE TEAM
WOODBRIDGE AVENUE, EDISON, NEW JERSEY

ORIGINAL
(Red)

MICROTOX ANALYSIS REPORT ON THE SEDIMENT AND AQUEOUS SAMPLES FROM THE RHINEHART TIRE FIRE

On November 18, 1983, eleven aqueous samples and eight sediment samples were taken f Microtox analysis. The samples were taken from the site of the Rhinehart tire fire response in West Virginia. The site was located in a valley in which an estimated f million tires were stored and it was suspected that arson was responsbile for starti the blaze. The Microtox samples taken were from the nearby stream into which some c the contaminants of the fire were flowing.

The samples were received on November 19, and had been kept cool during transport ir ice chest. The Microtox sediment samples were extracted using the method described the microtox application notes M105, September 1, 1982. The recommended extraction procedure required mixing one part sediment samples to five parts distilled water (w/v). Approximately five grams of each sediment sample was added to twenty five milliters of distilled water and placed in a fifty milliter Wheaton bottle. A magne stir bar was added, the bottles were closed with teflon seals and extracted for twer four hours. Samples were allowed to settle and were then filtered using a 0.45um disposable teflon filter. Light readings were taken at five and ten minute interval Operating conditions were as follows Turret assembly 15.0 C, and incubator 2.5 C. I calculations were based upon the mean of duplicate I_5 sample analyses.

A. Aqueous Samples

ORIGINAL
(Red)

Sample	pH	Concentration	Io	15	NPLD
Blank	6.0	0.0%	77	72	——
		5.65%	74	71	+1.4
		11.3%	74	71	+1.4
		22.5%	75	70	+1.4
		45.0%	70	67	+1.5
01833	6.0	0.0%	79	65	——
		5.65%	76	46	26.0%
		11.3%	77	49	38.0%
		22.5%	74	28	54.0%
		45.0%	68	18	68.0%
01830	7.0	0.0%	82	69	——
		5.65%	79	67	+1.5
		11.3%	77	67	+3.1
		22.5%	77	65	0.0
		45.0%	72	65	+8.3
01831	6.0	0.0%	76	68	——
		5.65%	74	65	1.5
		11.3%	74	65	1.5
		22.5%	73	65	0.0
		45.0%	73	64	1.5

ORIGINAL (Red)

MICROTOX ANALYSIS DATA

Aqueous Samples (Continued)

Sample	pH	Concentration	Io	15	NPLD
01834	6.0	0.0%	80	54	——
		5.65%	84	42	26.3
		11.3%	82	34	39.3
		22.5%	77	23	55.8
		45.0%	78	13	75.5
01835	5.5	0.0%	80	60	——
		5.65%	78	46	22.0
		11.3%	79	38	35.6
		22.5%	75	26	53.6
		45.5%	73	17	69.0
01836	6.0	0.0%	75	56	——
		5.65%	70	52	1.9
		11.3%	70	52	1.9
		22.5%	67	50	0.0
		45.0%	66	54	+8.0
01837	7.0	0.0%	80	60	——
		5.65%	81	58	4.9
		11.3%	78	58	1.7
		22.5%	75	53	5.4
		45.0%	74	53	5.4

MICROTOX ANALYSIS DATA

ORIGINA
(Red)

B. Sediment Samples

Sample	pH	Concentration	Io	15	NPLD
01838	6.0	0.0%	82	61	——
		5.65%	79	57	1.7
		11.3%	76	50	10.7
		22.5	79	47	19.0
		45.0	74	36	34.5
01839	6.0	0.0%	75	66	——
		5.65%	71	48	22.6
		11.3%	64	38	32.1
		22.5%	68	30	50.0
		45.0%	65	21	63.2
01832	6.0	0.0%	79	66	——
		5.65%	76	57	10.9
		11.3%	75	51	19.0
		22.5%	75	44	30.1
		45.0%	74	33	46.8

ORIGINAL
(Red)

MICROTOX ANALYSIS DATA

B. Sediment Samples

Sample	pH	Concentration	Io	15	NPLD
01830	7.0	0.0%	79	68	——
		1.2%	70	58	3.3
		2.3%	68	55	5.1
		4.5%	64	54	1.8
		9.0%	65	47	16.1
01831	7.0	0.0%	83	74	——
		1.2%	88	76	2.6
		2.3%	84	75	0.01
		4.5%	80	64	9.9
		9.0%	78	55	20.7
01832	7.0	0.0%	82	72	——
		1.2%	77	67	1.5
		2.3%	76	64	4.5
		4.5%	70	60	3.3
		9.0%	70	55	11.3
01833	7.0	0.0%	89	75	——
		1.2%	86	70	2.8
		2.3%	81	63	7.4
		4.5%	77	58	10.8
		9.0%	74	51	17.7

ORIGINAL
(Red)

MICROTOX ANALYSIS DATA

Sediment Samples (Continued)

Sample	pH	Concentration	Io	15	NPLD
01834	7.0	0.0%	75	64	——
		1.2%	67	40	29.8
		2.3%	62	30	24.5
		4.5%	66	23	58.9
		9.0%	57	14	70.8
01835	7.0	0.0%	78	60	——
		1.2%	76	55	6.7
		2.3%	73	50	6.7
		4.5%	71	44	20.0
		9.0%	65	34	32.0
01836	6.0	0.0%	79	72	——
		1.2%	76	67	2.9
		2.3%	77	67	4.3
		4.5%	75	65	4.4
		9.0%	76	61	11.6
01837	7.0	0.0%	81	63	——
		1.2%	82	60	6.3
		2.3%	79	56	9.7
		4.5%	76	54	8.5
		9.0%	75	53	10.2

DISCUSSION OF RESULTS

ORIGINAL
(Red)

Microtox samples were divided into two categories; sediment and aqeuous sample[illegible]. The aqueous samples were analyzed at a 2:1 dilution scheme resulting in the following sample concentrations: 5.65%, 11.3%, 22.5%, 45.0%. All samples were in the pH range of 6.0 to 7.0. Samples that displayed Microtox NPLD responses between +15.0% and 15 were rated as background clean, those with responses between 15.1% and 30% were rate as moderate, and those with responses above 30.1% were rated as significant. Since actual sampling locations were not provided, the samples were only examined in rela to their relative toxicity to one another. An overall view of sampling locations i relation to the source of contamination as well as controls would significantly aid evaluating the data.

The following data is the catagorizing of the aqueous data in terms of increasing toxicity.

Sample	Rating	Response
Blank	Clean	Stimulatory responses up to +1.5%
1830	Clean	Stimulatory responses up to +8.3%
1831	Clean	Responses up to 1.5%
1836	Clean	Stimulatory responses up to +8.0%
1837	Clean	Responses up to 5.4%
1838	Moderate	Responses ranging from 1.7% to 34.5%
1832	Moderate	Responses ranging from 10.9% to 46.8%
1839	Significant	Responses ranging from 22.2% to 63.2%
1833*	Significant	Responses ranging from 26.0% to 68.0%
1835*	Significant	Responses ranging from 22.0% to 69.0%
1834	Significant	Responses ranging from 26.3% to 75.5%

*These samples appear to share a similar concentration to response range and thus sh the same order of toxicity.